The Digital Presence of a person

A postphenomenologically informed case study

Master Thesis

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Chapter 1: Introduction

The focus of this thesis is set on the concept of a digital presence of a person. It stays at the core of most of the efforts to understand the relation between people and the communication technologies they are using, with the potential of redefining their social interactions. The straightforward connection that a person is making between a digital instrument and a technologically mediated form of sociality is what was taken into account for the relevance of studying these new forms of social interaction. The digital presence of a person is an active factor of everyday interactions. What is a digital presence of a person? How is it enacted? And how it becomes part of those interactions?

Let's say you are about to join the local tennis club. Let's also pretend that as you have a busy schedule and with the technological ability of connecting to that club over the Internet, you choose to send them a message – a digitized, technologically mediated request to become a member of that group. It is not as much about which channel of communication are you using to connect with the club. Let's assume that the message has passed the technological mediators, and the information was received. It appears as a classical example of mediated communication. Now let's switch the perspective and move the story at the receiver's end: the club's owner or a local committee that have to decide upon your admission. Even in the simplest scenario where no credentials are need it for admission there is an increasing chance that the decision-maker will look pass your initial message and will try to find out more about your interest in joining the club. How would they do it? It is at this point in time when the process of gathering information is exposing its techno-social nature. The decision-maker might ask around of people who knows you in order to endorse a decision, but chances are that they may just 'google' it. Your digital presence, a presence that was not built with the specific intention of joining a tennis club will play now an active part in the process of assessment.

No digital path toward a person is still an information taken into account by a decision-maker. And back to the tennis club, it might also be considered that you are applying in person and maintain the interactional exchange until a decision is made. You've been accepted. Even as a member of that club, fellow members might be eager to learn more about

you. Beyond a direct and non-technologically mediated social interaction, the access to your digital presence looms at the horizon of future interactions.

* * *

This chapter sets the stage for the analysis of the digital presence of a person. It starts with an overview of the transformations of a technical infrastructure, the Internet, into a cultural ground ready to accommodate an anthropological fieldwork.

The transformations are interpreted from a standpoint informed by a philosophy of technology known as postphenomenology, a perspective that gained its name and analytical contours through the works of American philosopher Don Ihde.

The research questions concerning the digital presence of a person are formulated in terms of human-technology relations, also a postphenomenological concept. The chapter will conclude by introducing the case study of research: the digital presence of Hugh Herr, an acknowledged personality in the field of bionic prosthetics, and a person who dedicated his life to the improvement of human-technological interfaces.

From the Internet to the World

The Internet appeared at first as a technical feature of computer interconnectivity. With its open-system network architecture, the Internet was soon to evolve into a complex landscape of information. The Internet with its cyberspace, with all the networks (some of them at times being called social), with platforms and programs, with its programming codes and algorithms, the Internet remains neither social nor cultural, but an instrumental part that functions as a dynamic process of informational reconfigurations.

The cyberspace qualifies as an environment, a place of emerging structures, structures that at times appear as they were not pre-conceived by an analytical model, structures that are 'naturally' evolving within that environment. These are transformations which are caused in part by technological interconnectivity, but also by a wide range of human-technological relations. It is not much of a novelty that "technologies are occupying a mediating position" in their instrumentally active role between humans and their world (Ihde, 2012, p. xiv). What qualifies as new and transformative is the evolution of cyberspace into a world in

itself. This cyberspace that existed in-between computers and allowed people to communicate has evolved into a fully grown digital world.

At first there were the computers that were interconnected and were communicating between them. After that, the users of the technology were enabled to get in contact with fellow users over the Internet, and by that technological feature, being able to surpass some of the constrains imposed by differences in locations, distances in space and time. What qualified the Internet with it's cyberspace as a world is the moment when people left their marks on that space, when their presence was not only in relation with something or someone, but they turned their activity into producing digital objects.

The fact that some of the users' activities were transformed into digital objects is part of the set up for a digital presence. As their acts were inscribed within that space, and by those technological affordances offered by digital tools and instruments, their presence gained a duration beyond the fleeting moment of a non-technological interaction. This aspect alone might not be considered as a sufficient criterion on approaching the cyberspace as a new and transformative form of reality. The practice of inscribing experiences, of recording them for future potential usages, might be as old as any historically known culture or civilization, a practice subsumed to the work of artists and craftsmen, in fact to any producer of any kind of artefact.

From the long historical time-span of an inscribed or written culture to the short one bent around the evolution of the Internet, what can be considered as a radical transformation is the moment when artefact creators, being them writers, photographers or computer programmers where somehow outnumbered by users engaged in a new type of sociality, a technologically enabled feature of communication; when the pragmatic usages of the Internet – usages considered as purposeful technological crafts – were relegated to only a small part of a wider sociality within the realm of the cyberspace. That particular moment accounts for the transformation of a technology into a world, the digital world.

To claim that the Internet, an instrumental technology, has turned into a world is a riskier proposition. The digital presence of a person or technologically mediated objects of self-expression are the constitutive elements of such a transformation. And still, an element of

self-expression alone does not qualify the cyberspace as a digital world. The communities of users, the sociality of the environment is the transformative factor of what might be considered as a paradigm shift.

The contours of a digital world are made apparent through an analogy with the phenomenologists' concept of a lifeworld: "the unquestioned, practical, historically conditioned, pretheoretical, and familiar world of people's everyday lives" (Desjarlais and Jason Throop, 2011, p. 89). The perceptual transformation of cyberspace into a lifeworld took place gradually, and only through its use as a social space.

A digital world covers more than the widely popular concept of a social media, where the sociality of that media is limited to user's acting, reacting and interacting with various media contents. A digital world, as it is built on the coordinates of a new, technologically mediated form of reality, establishes itself as a world through all the digital objects of self-expression. A digital world is not a social network, it extends beyond that, as social networks remain only the tools, the instruments with which to access and interact with the information available in cyberspace.

The digital presence of a person extends to all the expressive forms of a mediated recognoscible identity. It goes beyond a simple avatar, where an avatar is understood as an intentionally created self-representation of a person in cyberspace. A self-representation that is by default limited to the design features of a specific digital tool or instrument, being it as large as a network or platform or as tiny as a pin (personal identification number). The digital presence of a person in cyberspace covers a broader territory limited only by an identity-border, where beyond that, that person's digital presence loses any perceptually available form of recognition.

A phenomenological perspective approaches the Internet on a loose approximation, by attending to the new aspects of perceptual experiences. An experience, being it straightforward or technologically mediated is the primary unit of inquiry, and a phenomenological analysis will attend at(to) whatever transformations of experience are made through, with, or by the use of a technology.

If the coordinates of a world were somehow made clear, a question still remains: What is the digital? The digital is "everything that has been developed by, or can be reduced to, the binary – that is bits consisting of 0s and 1s" (Horst and Miller, 2013, p. 5). The definition offered by Heather Horst and Daniel Miller, editors of an anthology of Digital Anthropology, is an elegant and technically correct definition of the concept. The problem with this definition becomes apparent by the absence of an addressed intentionality. It is not the digital reduction that is problematic at first, but the missing agents of praxis: everything developed by whom? Within the cyberspace, as long as there are digital instruments with built in features of decision-making acting upon the bits of information of a digital environment, there are no problems of attributing intentionality to a technology. The presence of a human agents is also producing intentional transformations. Thus, the digital world is a place of convergent actions made both by humans and by instruments, and within this context, the definition fails to address the human-technology relations.

The human-technology relations are at the core of a postphenomenological analysis. From within this perspective, the relevance of addressing intentionality rests upon its function as the directional shape of experience (Ihde, 2012, p. 28). In order to make sense of any perceptual experience, intentionality is the access point toward observation.

The text so far was moving along a transformative path: from the Internet to the cyberspace, and from there to a digital world. It is in here where the claim is made that the digital has a transformative effect not only on the realm of cyberspace, but also on what goes as a lifeworld, on what is experienced as a reality, as everyday life.

Don Ihde, in his 2010's book "Embodied Techniques" is summarizing the new technologies embedded into the Internet and consequently in cyberspace. There are media, imaging and digital-computational technologies that are acting as human-technological interfaces that all of us are experiencing.

The phenomenological perspective sees these contemporary technologies as embodying or re-embodying our fleshly experience in new and interactive ways(Ihde, 2010, p. iii). Not only that the cyberspace has evolved into a digital world, but this tight relation between people and these new technological interfaces is transforming the modes in which the

world, as a lifeworld is experienced. On Luciano Floridi's terms, since the invention of the Turing machine, the technological forefather and harbinger of the present day Internet, the world is experiencing an "anthropological revolution (Floridi, 2015)."

The Research Questions

Following the initial thoughts above the research questions are:

How is the digital presence of a person acted upon? By whom (or what)?

And secondly,

Is the digital presence of a person transformed? And how?

The question is addressing the transformative moment when a technology has evolved into a virtual community, and from there on to its availability as a field of social and cultural inquiry. Someone's presence and presentation of themselves and their ideas, their thoughts or any other intended or unintended forms of expression, as transformed into digital objects, become part of the cyberspace.

The digital world is acting as a mediator and operates transformations beyond any previously known, analogic or non-digital forms of interactions. There are human, technical and hybrid interventions acting upon those objects, with different and transformative influences both on the performer of an action, and on the potential audiences, once encountering not the person, but one of his digital self-expressions.

The nature of what constitutes a digital presence of a person will be further explored through a case study: the digital presence of Hugh Herr, an American rock climber, engineer and biophysicist, who lost his legs at the age of seventeen due to a mountaineering accident, and has since then being engaged in a dialogue with the world through various technologically-mediated channels of communication.

The relevance of Hugh Herr's story to this research is that he has dedicated his entire professional career to the process of improving a human-technological interface, and doing that by also communicating with the world most of the steps of that process, mainly through an active digital presence.

The next chapter presents the main theoretical perspectives that have contributed to the construction of the concept of a digital presence of a person:

Chapter 2: Digital presence of a person - theoretical perspectives

The digital presence of a person is a concept built at the intersection of two theoretical perspectives: the dramaturgical analysis of Erving Goffman (Goffman, 1959) and the post-phenomenology of Don Ihde (Ihde, 2012, 2010, 1990). They are used in conjunction in order to offer a different approach to what is commonly referred as a digital self.

In relation with a technical artefact that mediates their actions such as the Internet, people are either transferring information – the communicative act, or they act as craftsmen of artefacts – the creative act. The concept of self remains somehow personally attached, or it is engaged when different platforms of social media are talked about.

On the social coordinates of the concept of self the dramaturgical analysis of Erving Goffman is playing the role of a conceptual tool box in the analysis of objects of self-expression. Afterward, those self-expressions that are transformed by a technological mediation are to be interpreted through a postphenomenological grid of what is perceptually experienced.

As neither a phenomenological perspective nor a dramaturgical analysis were built with a focus on the reality of a digital world, they share an essential interest in the modes of relating with the world, either through perceptual interrelations (phenomenology) or through social interactions (Goffman's dramaturgical analysis).

The relational aspect of experience qualifies them as the appropriate tools for an analytical effort to understand the transformative nature of mediating technologies and also the hermeneutics involved in the process of reinterpreting the concept of self, as it is to be seen through its digitized extensions imposed on it by the use of technological instruments.

* * *

Goffman's idea of a person's presence is related to the definition of a situation, a moment of interaction primarily constructed in terms of relational influence. The interaction "may be roughly defined as the reciprocal influence of individuals upon one another's actions when in one another's immediate physical presence (Goffman, 1959, p. 26)."

The technical process employed in order to maintain an interaction beyond a particular physical location is a process of data encoding and, not always necessarily, data recording. Digitizing one's actions and presence is a process of transforming a moment of interaction, a person's physical presence into a digital object. If an interaction is mediated by means of communication technologies, the modes of information transfer between an individual and his audience are addressed by a reflective approach of computer mediated ways of communication. From a dramaturgical perspective, a social interaction goes beyond a process of communication, and it is not limited to an informational transfer.

The digitization of a person's actions and expressions as a technical process shares a functional similarity with the process of writing, where the inscription of those self-expressions is setting the ground for a transformative effect upon social interaction: "the important function of written, documenting linguistic expression is that it makes communication possible without immediate or mediate personal address. It is so to speak, communication become virtual. Through this the communalization of man is lifted to a new level (Ihde, 2012, p. 122)."

Attending to this new level of technological mediation another aspect of the process of interaction needs to be addressed in order to make sense of the concept of a digital presence of a person. Taking into account the parts or the routines that are played by a person on different occasions, Goffman's dramaturgical analysis is also addressing the concept of social distance, that is set between an individual's activity and how that performance is received, interpreted and acted upon by an audience of observers.

The initial social distance between a performer and his audience has always had a middle ground in those self-expressions of a performer, expressions with an active role in interaction. As they are digitized and inscribed within the digital world, they become objects of a virtual materiality, objects that are to be interpreted along the lines of their 'human-technological relation' (Ihde, 1990). This transformative feature of technological mediation opens up a new stage of interaction. If a performance is digitized through technical mediations, the analogy that can be employed is also for a technological distance.

If a performer's actions are mediated toward an audience in terms of a cultural common ground that makes the interaction possible – by means of language or knowledge about a particular subject – the digital presence of a person, as an object of virtual materiality, adds up to the range of actions that can be encountered in interaction. Thus, it is not a matter of social or technological distance, but rather a cultural distance that is set in terms of social availability and technological accessibility.

The presence of a person within the digital world, as much as it is influenced by spatial or temporal coordinates, turns more into a problem of accessibility. The digital presence of a person makes the interaction possible only when the enclosed object of self-expression is made available to an audience by a technological mediator that that audience has access to. The digital presence as an object of virtual materiality is also granting the possibility for an interaction between a person and its own priory digitized self-expressions.

The digital presence of a person is constructed in terms of digitized forms of expression. As there is a cultural distance between those self-expressions and the plurality of audiences it might reach, the problem of technological accessibility needs to be addressed first.

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The postphenomenological approach to the digital presence of a person is set on Don Ihde's terms, for whom a technological mediator – object or instrument – produces "new and previously unknown and unused capacities of human-material process (Ihde, 2012, p. 128)." If the construction of a digital self-expression is set as a process of writing or inscribing a person's acts as information, the completion of a technologically mediated interaction requires in return a process of decoding or reading of that particular information: "the involvements I have with material objects are 'read from' the objects in their relation to me (Ihde, 2012, p. 93)."

For a non-digitized social interaction, the cultural distance is covered by a shared cultural code that makes at once possible the encoding and the decoding of a person's self-expressions. It is a relation of a "direct presence"(Ihde, 2012, p. 10), of something that is straightforward perceptually available. But even by using the same language, with similar meanings, there are social interactions that are open to interpretations and misunderstandings: a

message can be heard but not understood. Beyond the fact that a language is a communicational tool, the emphasis in here is placed on the reflective act of interpretation: the distance between a clear and an abstruse message is in phenomenological terms the distance between transparency and opacity.

This linguistic detour is necessary to introduce the main analytical tools of postphenomenology: the phenomenological and the hermeneutic relations. Where the phenomenological relation is set on the ground of straightforward perceptual experiences; within a hermeneutic strategy the primary emphasis is placed on language. The digital presence of a person as a virtual object of self-expression is settled in a hermeneutic scenario, where a person's performances might be equated with the 'story device' of a hermeneutic relation: "the story device is not neutral. It allows or suggests a certain way for the perceptual act to take shape (Ihde, 2012, p. 59)." In order to cover the cultural distance of a technologically mediated form of social interaction both the social and the technical distances have to be addressed.

From within postphenomenology perceptual experiences are set on a spectrum from quasi-transparency to quasi-opacity, as there are no experiences unmediated by a technology.

In order to attend to the digital presence of a person, and with the primacy of a hermeneutical relation, first to be addressed are the technologies that are acting as perceptual mediators.

The reflection upon the digital tools or instruments that are mediating a person's self-expressions represents an analytical path that aims to reduce the perceived opacity of those expressions. And this has to be made considering that even quasi-transparent perceptual experiences are exposing those self-expressions to interpretation: "the 'subject' is enigmatic for phenomenology. It is known only reflexively from which phenomena and how these phenomena are made present to it (Ihde, 2012, p. 11)."

What is to be learned from postphenomenology is to differentiate from a straightforward perceptual experience and a technologically mediated one. The experience of writing might serve as an illustrative example for the perceptual transformations on a transparency-opacity spectrum. The fact that someone is writing a text on a computer qualifies the experience as a technologically mediated one. The same goes for a pen or any other tool meant to

inscribe a message. The experience might also qualify as a straightforward one, when the perceptual focus is on the message to be transmitted. When that happens, it can be said that the technical mediators are exiting the observer's field of reflection, they are becoming transparent.

Many people, most of the time are passing over their digital traces. Those traces are often discarded without much consideration. The spam folder of an inbox or the news feed of acquaintances are not part of the field of perceptual reflection. A software takes care of the unsolicited or digitally qualified as irrelevant materials. An inquiry upon the digital presence of a person has the potential to reverse some of the elements of that presence to the field of reflective experience.

The next chapter addresses the methodological approach and the methods to be used in order to access an extensive field of reflective experience.

Chapter 3: Digital Ethnography, Methods and Tools

Introduction

The theoretical perspectives used in the construction of the concept of a digital presence of a person – the postphenomenology of Don Ihde and Erving Goffman's dramaturgical analysis – are also setting the methodological approach: an ethnography of a digital presence of a person that will exceed a mere textual interpretation or critique. It has to analyse not only the objects of communication, but also the networks where that digital presence is in effect.

The aim of this digital ethnography is to explore how self-expressions of a person, once digitized, become objects of a virtual materiality; how people are exposed to technological transformations that are channelling the interaction, being it technical or social. Accordingly, an anthropological quest toward a digital environment of complex human-technological relations should aim for an analysis of virtual materiality, of objects that are acted upon concertedly by humans and technologies.

Digital ethnography

As early as 1994, in the article "Welcome to Cyberia" (Escobar et al., 1994), an article also written as an invitation for anthropologists to attend to the realities of the cyberspace, Arturo Escobar has noted that: "from print-based paradigms of visual literacy to the virtual worlds of digitized information, we are witnessing a transition to a new postcorporeal stage that has great promise for creative social logics and sensorial regimes. Cyberspace affords unprecedented possibilities for anthropologists in terms of realizing this promise (Escobar et al., 1994, p. 215)."

The transformations of people's acts and activities into digitized versions of those expressions, the extensions of persons' initial self-expressions into digital replicas that might or might not be attended to by audiences with a different cultural background, these are the coordinates of a digital presence of a person. The concept as it was presented thus far, is rooted in a philosophy of human-technology relations (Ihde, 1990), and it aims to attend at

the hybrid forms of social interaction (Goffman, 1959). It is built as an attempt to follow into Arturo Escobar's envisioned new forms of social logics.

More than twenty years later, Annette N. Markham, in her methodological chapter – "Ethnography in the Digital Internet Era" (Markham, 2016) – a piece written for the up to be published new edition of 'The Sage Handbook of Qualitative Research' is ready to admit that "in a social world increasingly mediated by internet-based digital communication, researchers struggle to find or adapt terminology to label the technologies that impact social and cultural life in the second decade of the 21st Century, as well as the cultural processes and formations themselves (Markham, 2016, p. 3)."

The request for a clear terminology is addressing more than a word-choice problem. As the authors of the Onlife Manifesto aptly remarked "(...) the lack of a clear conceptual grasp of our present time may easily lead to negative projections about the future: we fear and reject what we fail to semanticize (Floridi, 2015)."

The problem of concepts' usages appears to be parochial, and not because it fails to establish an inter- or transdisciplinary dialogue with the purpose to attain a conceptual common ground. It is rather in spite of that, as one of the most salient questions addressed by researchers remains centred in how the digital transforms their own practices: "Digital Ethnography takes us to the core issues in this debate. It asks how digital environments, methods and methodologies are redefining ethnographic practice. It takes the novel step of acknowledging the role of digital ethnography in challenging the concepts that have traditionally defined the units of analysis that ethnography has been used to study (Pink et al., 2015, p. 2)."

There are two steps necessary to be taken in order to regain the methodological clarity for a digital ethnography. First, it has to switch its focus from an inner-centred critical approach to methodological practices toward ethnography's traditional values, the outer-realities of a "cultural other" (Geertz, 1973, p. 5). That cultural other being either a person or an object of digital self-expression.

Second, it has to be rooted in a philosophy of technology that addresses and is attentive to the intentionalities of technological artefacts. Where: "actions are the result not only of

individual intentions and the social structures in which human beings find themselves, but also of people's material environment; things mediate actions as material things, not as immaterial signs. Artefacts are able to exert influences as material things, not only as signs or carriers of meaning (Verbeek, 2011, p. 10)."

The digital presence of a person is one of the first hybrid constructions of an informational environment. With various degrees of fidelity, it represents the self-expressions of a person, while at the same time it remains an object of virtual materiality. From within a phenomenological perspective, a digital ethnography is bound to the limitations of the tools used in the process of data selection. It is an experience mediated by artefacts, and analytically, the researcher finds himself in the following scenario:

"(Human-Machine) – World" (Ihde, 1990, p. 100)

Or, in here

(Researcher-Search Tool) – Digital World or Cyberspace.

It is a hermeneutical relation that is apt for an ethnographic research, an approach that invites to reflexively engage with the virtual materiality of a person's self-expressions.

The ethnography of a digital presence

In order to attend to the digital presence of a person, and before entering the specifics of an ethnographic research, it is necessary to assert the specificity of a phenomenological approach, how an experience of a phenomenon is possible. It is an experience of a personal relation of the researcher with the collected data: "I know myself only in correlation with and through the world to which I am intentionally related. This is to say, in phenomenological terms, I and the world are correlated, that without world there is no I and without I there is no world (humanly conceived) (Ihde, 2012, p. 40)."

Within this analytical framework, there are two I's, two subjects of experiences: the person of whose digital presence is to be analysed, as an object of virtual materiality, product of multiple and various digital transformations within the realm of human-technology interaction, and I the researcher, the observer of an instrumentally-mediated presence of a digital persona.

As the findings are relative to this relation, the experience is not one to be qualified as subjective. The phenomenologist similar to an ethnographer goes beyond personal impressions built around the perceptual engagement with the data, while organizing them around a "theme" (Hammersley and Atkinson, 1995, p. 246), it is an analytical effort oriented toward the "grounding" of their observations (Strauss, 1987, p. 5) within a structure of phenomena that are sharing similar features.

The technologies behind the digital transformations has to be addressed first, only if to avoid the potential weaknesses in the assessment of an ethnographic endeavour: how an ethnographic research should be conducted and what it is to be expected out of it. Embarking for a digital ethnography that primarily attends not at people but at their digital self-expressions is a process that needs further adjustments. Thus, and as a second matter of concern, it has to address the cultural aspects that relates with the digital content of a person's performances, their use of digital tools for self-expression. What a person chooses as an informational content of their technologically mediated presence: "… it took some time before social scientists looked at cyberspace as an integral part of contemporary society; the appeal of this rich resource has largely been limited to those aspects that can be addressed with more or less established, verbally oriented, methods. The core concern here is how to decode/disclose the cultural information that resides both in the form and content of web sites (Pauwels, 2012, pp. 247–248)."

As the primary unit of analysis is a web-link (or source) that opens up into a cultural frame – the website; at least a couple of aspects form the multimodal framework for analysing websites proposed by Luc Pauwels are to be engaged: the preservation of first impressions and reactions; and the inventory of salient features and topics(Pauwels, 2012, p. 252). One of the aspects covers the classical ethnographic practice of fieldnotes, where the other relates with a thematic conceptualization of findings.

Second, it has to engage with the architecture of the digital environment, its tools and instruments. Taking on social network platforms, Nancy Baym, an American academic and former president of The Association of Internet Researchers decries that those platforms are relying on filtering algorithms for data inquiry, filters that are not transparent in their data sorting: "users can neither understand nor knowledgeably influence these filtering mechanisms, nor can we see whose interests they serve. Platforms have take-it-or-leave-it

terms of service that nearly always over-reach. In times of massive surveillance, we never know where our data will end up, used by whom for what purposes (Baym, 2015, p. 2)."

A network, as any architectural construction, it is acting as a constraining factor of social interactions – channelling the straightforward perceptions on pre-defined paths of data streams. It is what accounts as "the non-neutral principle of technological artefacts" (Verbeek, 2011, p. 8)." The perspective on social media platforms, and of any digital tool for that matter needs to be considered not only on the moral grounds expressed by Peter-Paul Verbeek, but also taken into account for what is made perceptually available through a specific digital mediator. Addressing the instruments of research, their limits and affordances, should be done at the beginning of any digital research.

The order of relevance imposed on digital sources by a web-search engine when an inquiry is made remains problematic, as it obscures to the users not only the criteria of relevance but also the influencers of those criteria, being them human or non-human.

Despite the conceptual diversity used in the effort of defining the digital, the technologically mediated forms of interaction, ethnographers are remaining faithful to their methodological approach: "virtual reality" is not a reality separated from other aspects of human action and experience, but rather part of it. Therefore, ethnographers should define the field or setting of their research on the basis of their research topic, rather than arbitrarily or prematurely excluding one arena or the other.(Garcia et al., 2009, p. 54) (Garcia et al., 2009, p. 54)

A composite method

On his methodological essay "Methods of Discovery. Heuristics for the Social Sciences," the American sociologist Andrew Abbott operates a categorization of the methods used in social sciences using criteria such as the type of data gathering, the modes employed for analysing those data, or even in regard with the problem formulation: "how one poses a [research] question (Abbott, 2004, p. 14)"

A postphenomenological inquiry has its own approach of engaging reality, a 'variational method,' a perceptual approach to experience that aims for the repeated and significant patterns of those data. It is done by "probing the investigation through different perceptual, imaginative and conceptual variations (Ihde, 2012, p. 108)."

The specificity of the digital ethnography is that the researcher's engagement with data is always technologically mediated. On broad brush-strokes it can be said that the method used is a non-obtrusive, non-participative observation. Where the criterion set by the type of data gathering discriminates between:

1. "Ethnography: gathering data by personal interaction
2. Surveys: gathering data by submitting questionnaires to respondents to formally interviewing them
3. Record-based analysis: gathering data from formal organizational records (censuses, accounts, publications, and so on)
4. History: using old records, surveys, and even ethnographies (Abbott, 2004, pp. 13–14)"

– the observation of a person's digital presence needs to recast the methods for a specific approach.

On Abbott's structure, the process of data gathering might not qualify as an ethnography, as there was no personal interaction between the researcher and the 'subject' of inquiry. Attending to Hugh Herr's digital presence the investigation shares more similarities with a record-based analysis or a historical or biographical approach.

Another analytical distinction made by Abbott between a case-study analysis – "studying a unique example in great detail" – and a small-N analysis of "seeking similarities and contrasts in a small number of cases (Abbott, 2004, p. 14)" – renders to be problematic. If the approach is set to attend to Hugh Herr's digital presence the analysis follows in the category of a case study. If the primary unit of analysis is to be considered a web-link or a source gathered in the process of data collection – the web-search inquiry made on 'Hugh Herr''s name – the method can be classified as a small-N analysis. Apparently the later approach is the one that qualifies the research as ethnographic in nature, where Abbott is attesting of this method as being emergent of ethnographic and historical traditions.

On conducting a case study of Hugh Herr's digital presence built on the digital resources of different web-searches, the design of the method was also influenced by the theoretical perspectives used in the construction of the concept of the digital presence of a person. The postphenomenological acknowledgement of the technological mediation of perception placed the emphasis on the role of digital instruments used in the data collection process, where the dramaturgical analysis gave the structure of the digital ethnographic narrative:

the results are presented under the following headings ‘The Network’ (as the stage or the field of interaction), ‘The Performer’ and ‘The Audiences’ – thus digitally mirroring the classic setting of social interactions.

Chapter 4: The Digital Presence of Hugh Herr

The data collection, findings and preliminary analysis

Introduction

The process of data collection has started at the beginning of the year. From that moment on a few different tactics and strategies for analysing the data were employed. Some of them were kept, others were discarded. The constant of the process was given by the problem formulation with a focus on the elements that are contributing to the construction of a digital presence of a person. The entire process was conducted with a phenomenological awareness, an emphasis given to what is perceptually available: the straightforward experience of perception.

As an ethnography of the digital, an equal attention was placed on the technical mediators of experience. There is not only the digital information that is contributing to the contours of a digital profile, but also the tools, the instruments that were mediating the perceptions. Each instrument used is acting as a modulator of experience. Early in the process, the analysis of Hugh Herr’s digital presence has started with a Google Scraper web-search inquiry. The term set for that search was ‘Hugh Herr’ and a data pool of 341 sources or web links were rendered. Most of the analysis that will follow is based on that initial data set.

In order to transform a web search into a digital ethnography the process of data collection has to be complemented by an analytical interest and these processes concertedly employed in the writing-up of the findings: the narrative of a digital ethnography. The story to be told about the digital presence of a person does not follow the same path as the data collection process. There are few points that are engaging the narrative, acting as sign-posts and being a part of the architecture of this chapter.

The context of a digital field work is set by presenting at first the network. The narrative will follow by engaging the performers, the contributors at the construction of a digital presence. After that, the hybrid sociality of human and technological mediations is to be addressed by the audiences that are engaging in an interaction with a digital presence.

The Network

The outcome of a web-search usually comes in the form of a list. The results are arranged by some search criteria set by the web-searching engine, and those criteria are not always transparent. For example, the relevance-sorting of data is not telling much about what is consider as relevant and by whom. In the effort of making sense of Hugh Herr's digital presence, the list given by those instruments did channel the research for a while. Taking into account that those results were part of a larger network of digital information made a shift in attending to those data. The links are part of a web, and the structure of the web can be made visible. Another digital tool was engaged: Link Ripper. The software offers an analysis of the connections of each initial result. It is doing it by differentiating about internal and external links and it also provides a file (*.gdf) that further along makes a graphic visualization of a network possible. The internal links are referring to those links toward other digital elements on the main domain under which the result is to be found. The external links are those connections with other web sites. The report of an inquiry made by using Link Ripper, the *.gdf-file, once transferred to another digital tool (Gephi) makes possible for a different perceptual experience of data. It opens up to a landscape of the digital, mapped by the use of mathematical algorithms of network relationships. The description of the algorithms used in the process of mapping are to be made explicit at every stage of presenting the findings of this inquiry. As the main function of a map is to offer guidance and orientation, it was by the use of these maps that a new perspective opened up for the analysis of data.

An Overview

As the most relevant results of the Google Scraper inquiry for Hugh Herr's digital presence were links toward his Wikipedia profile or his personal page at the MIT Media Lab, the

perceptual difference between a list and a map became apparent for the first time while constructing a visual representation of the digital connections of those results.

A first map of those sources was drawn by using a Fruchterman-Reingold force-directed algorithm ("Force-directed graph drawing," 2016). Every dot on the map represents a node or a web-link address. Every line that connects the dots represents an edge, a graphical depiction of a relation between two links. As recommended by Gephi's software developers (Bastian et al., 2009), in the process of drawing the map with a Fruchterman-Reingold algorithm, the area of the map is to be set at a value ten times larger than the number of nodes in the network. The entire network has 10.061 nodes and 10.184 edges. Thus, the area of the network was set for a rounded value of 100.000 and the gravity – "the force that attracts all nodes to the centre to avoid dispersion of disconnected components"(Bastian et al., 2009) – the gravity was set at 5.0. The size of the nodes was initially set by degree; the total number of connections a particular node has.

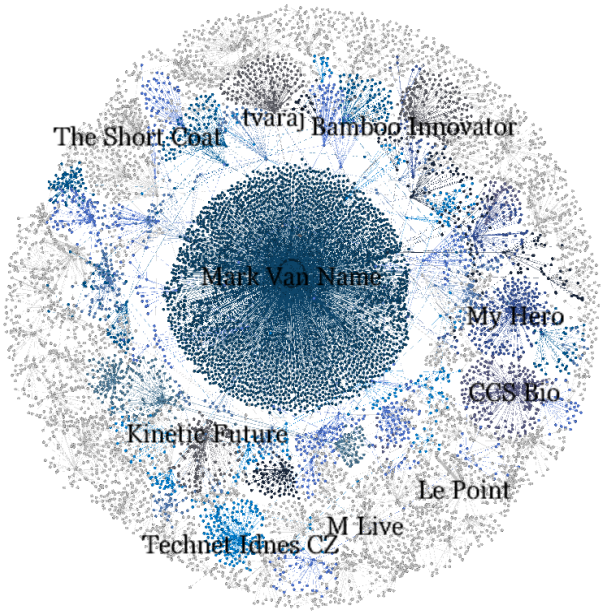

Figure 1 An initial Gephi visualization of results. The labels are showing the sources with the highest degree

Beyond the technical description of the process of map construction, the first visualization of the data appeared as an anomaly. While exploring Hugh Herr's digital presence through the data made available on a Google Scraper inquiry, at the centre of the map, with a degree count of 2973 and occupying almost one third of the entire network (29.56%) stands a link that connects with "The official site of author Mark L. Van Name." Moreover, the web address ranks low in the list of sources generated by Google Scraper (position 337 out of 341) and opens up to a blog post with a title that makes no sense without a context – "Another MWC day" – published on the Blogger platform and written in a telegraphic style. This is the link that stands at the centre

of the map. Further down the page a label with Hugh Herr's name on it connects with another post from March 30th 2014 where the author is inviting his audience to watch Hugh Herr's 2014 TED Talk – "A TED talk you will be glad you watched." Mark L. Van Name, a science fiction writer and technology consultant as his Wikipedia profile reads, on a two paragraph long post and by using a hyperlink sends his audience to the website TED.com.

The Link Ripper search was made for external links, and with the purpose of identifying potential connections between the sources rendered by Google Scraper. By overusing digital labels in his jotted blog posts, Van Name is somehow distorting the network. The labels attached to this initial map (Figure 1) are of those sources that have the highest number of digital connections. Their relative positions on the Google Scraper list of Hugh Herr's digital connections rank as high as 71 for the website myhero.com and as low as 337, the already mentioned science fiction writer. It is a map that depicts an extensive digital presence – a high number of connections – but not necessarily addressing the focal point of research: Hugh Herr's digital presence.

Another element of map description has to be added before going forward with data presentation. The shades of blue in which the nodes are coloured are indicative of them being part of a network community. One of the statistical features offered by Gephi is an assessment of the modularity of a network. It is a method of community detection, where modularity defines the process of "decomposing the networks into sub-units or communities, which are sets of highly inter-connected nodes (Blondel et al., 2008, p. 2)."

The largest detected community is the one at the centre of the map, the 'Van Name' community, and as already mentioned it occupies 29.56% of the network. A change of approach was made in order to attend to the most influential sources of Hugh Herr's digital profile. The nodes were weighted this time not by degree but by their coefficient of 'betweenness centrality'. "Betweenness centrality is an indicator of a node's centrality in a network. A node with high betweenness centrality has a large influence on the transfer of items through the network, under the assumption that item transfer follows the shortest paths("Betweenness centrality," 2016)." The next five, largest in size, communities were thus selected for a more in-depth analysis.

The Network Communities

Community 26 – 5.36%

The second largest statistical community, covering 5.36% of the network revolves around Hugh Herr's Wikipedia profile. The Google Scraper list and the network visualization are regaining an agreement of relevant sources. By using the value of 'betweenness centrality' coefficient calculated for each source, and only for visualization purposes, the three highest values within each community were enlarged for a better discrimination. As Hugh Herr's Wikipedia profile will be part of a dedicated section, the attention will focus on the other sources that are scoring high in their network centrality.

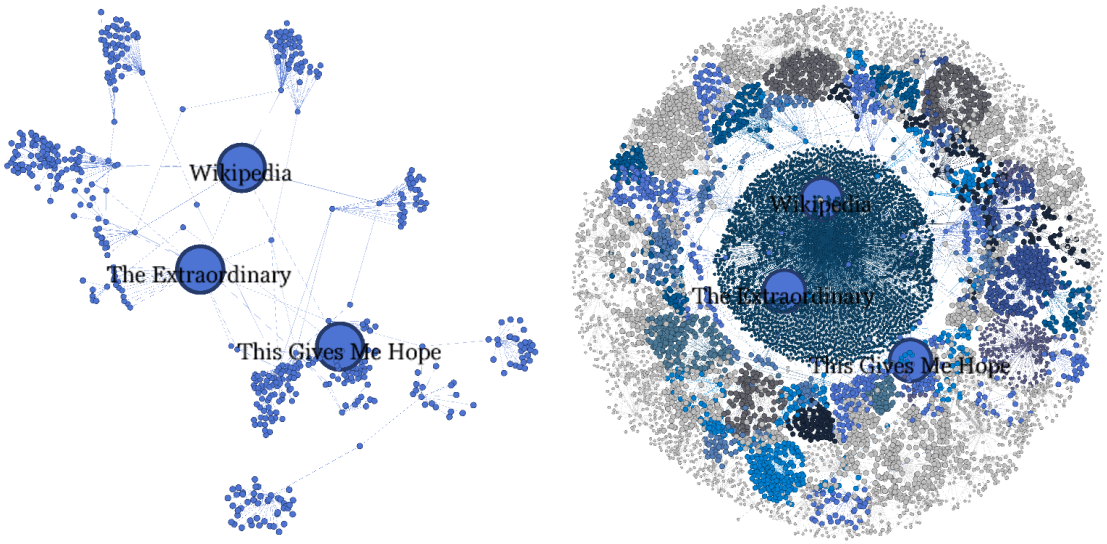

Figure 2 Community 26 - 5.26%, the second largest community on the network of sources about Hugh Herr.
To the left, a detailed visualization of the community. To the right, the relative position of the community within the whole network.

The website The Extraordinary has its digital address located in Sidney, Australia. The site is run by Peter Horsfield, who describes its mission as featuring "real life stories of extraordinary people (from all ages, all over the globe) changing the game. How they struggled and overcame adversities, oppression, challenges and criticism, while in pursuit for a better future for all ("About us - TheXtraordinary," n.d.)." The source ranks 60 in the initial list of sources, and at the time of accessing it a counter at the bottom of the page announces that Hugh Herr's profile has been red 2821 times (As of June 1st 2016). The source departs from a classical article-type presentation. The main page opens up with a short presentation of Hugh Herr on an axis from ability to disability, and how these terms should be defined for a person who overcame the amputation of his lower legs and by the use of technology

– prosthetics that he helped created and developed – regained a normal walking gait. The page also has a picture of Hugh Herr seated and presenting his prosthesis to an audience. The architecture of the site presents a number of seven tabs at the bottom of the page, tabs that are covering extended sub-sections on Hugh Herr's biography and achievements. There is also a section of quotes, a video and an image gallery. The 'support' tab is acting as a social-network mediator. There is no cause for support in there, only a request for either joining social media profiles – Hugh's Herr twitter account or Facebook group iWalk; or sharing the profile created by the site.

The other website of high centrality – "This gives me HOPE" – is curated by Cathryn Wellner. On her personal website she describes herself as a writer, photographer and storyteller. On the website structure the article about Hugh Herr appears on the subpage 'Health' and is tagged in the following categories: health, obstacles and science & technology. The themes of the article are in this order, Hugh Herr as a rock climber prodigy and his mountaineering accident, his research on a path from restoring mobility toward augmenting human capacities, and it ends with the website's main theme – hope, under the following heading "Limits. They are something we impose on ourselves and each other. Herr is lifting them. He gives me hope ("#1030 Hugh Herr laughs at the 'limitations' of the human body," 2014)." A photography taken during a presentation given by Herr at the 2012 Zeitgeist Americas serves as illustration for the article. Within the body of the text two video materials are embedded: 'The World We Dream" presentation at Zeitgeist and the 2014 TED Talk 'The New Bionics That Let Us Run, Climb and Dance.'

As the detailed map reveals, this network community is one that presents a dense web of connections, and if the two main sources are acting somehow as contributors to the notoriety of Hugh Herr's digital persona, there are also connectors toward some of the most list-relevant web sources. Part of this community is The Biomechatronic Group at MIT, two video links toward the most relevant presentations made by Herr: his 2010 TED Med Talk and the 2014's TED Talk on bionics. Also within this community, possible also as an in-

fluence from Herr's Wikipedia profile, are linked as sources some of the most biographically comprehensive articles written about him, such as the Boston Magazine article form 2009 – "Best Foot forward."

Beyond this content rich web sources, there are a few digital connectors that are ranking high in their centrality scores. The addtoany.com website, a digital source that has as its only technical feature of sharing other digital materials on a large pool of social networks. Also within this community is the web-link toward Hugh Herr's twitter profile. Algorithmically built on the interconnectivity of web addresses, this community is highly heterogeneous for what constitutes the main aim of each particular web domain, where the model this time is of an intensive use of Hugh Herr references.

Community 30 – 4.48%

The network architecture of this community presents three oversized sources with an increased score of 'betweenness centrality.' These are the same sources that are also present in the initial visualization of the network: a large digital path of interconnectivity and following the same strategy of a digital presence as the science ficton writer mentioned before on the overview of the network. Taking into account the Google Scraper's list of sources, these links are of reduced relevance for Hugh Herr's digital presence. They are

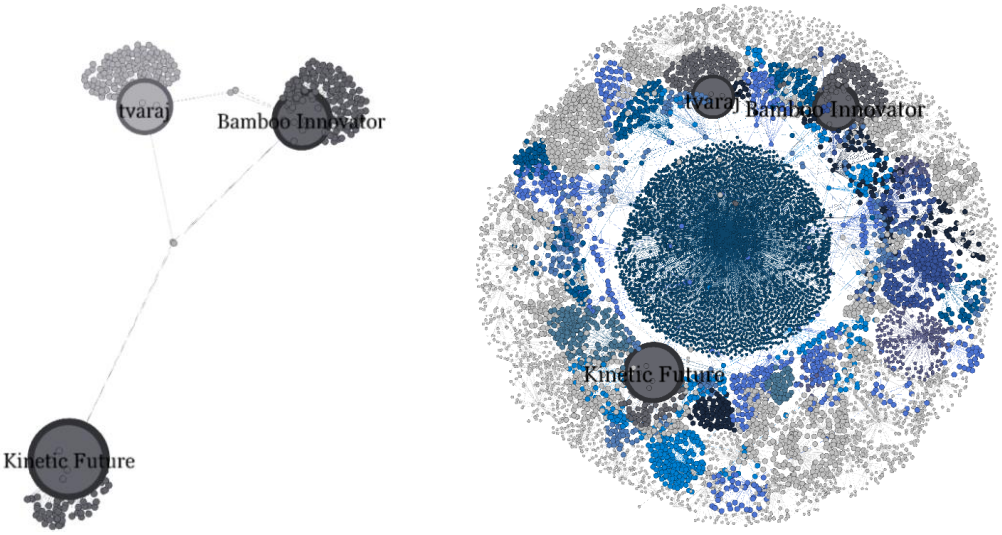

Figure 3 Community 30 – 4.48 %, the third largest community on the network of sources about Hugh Herr.
To the left, a detailed visualization of the community. To the right, the relative position of the community within the whole network.

ranking as high as 90 – tvaraj's blog post 'Hugh Herr: The Bionic Man' – and as low as 304 – the Kinetic's Future article 'Deliver a Jaw Dropping Moment.'

The two sites mentioned before are both sharing Hugh Herr's 2014 TED Talk presentation 'The New Bionics That Let Us Run, Climb and Dance' but they are not interconnected through that digital link, as one of them makes the connection with TED.com's page, where the other links to the YouTube address of that video material. As for Kee Koon Boon, the owner of bambooinnovator.com, he is just 're-broadcasting' on the same day and without aknowledging the original source, an interview with Hugh Herr taken by Joseph Rago for The Wall Street Journal: 'The Liberating Age of Bionics.'

What connects these sources together into a network community is not the informational content that they are sharing. The node at the center of the map is connecting to the wordpress blogging platform, where the connection between 'tvaraj' and 'bambooinnovator' is given by the fact that the owners of those blogs are using the same service for their digital profile, namely gravatar.com. It is within this context that it becomes apparent how a digital service might contribute as influencer of someone's digital presence, even beyond a simmilarity of informational content.

Where the relevance of a particular web-source is left for assesment to a mathematical algorithm, without a human/interpretive control, the network environment has the potential of developing unexpected or unintended connections considering a holistic approach to someone's digital presence.

Community 60 – 4.25%

Hugh Herr's MIT Media Lab digital profile stands at the centre of this network community. The other central elements of this web of sources are a Chinese inquiry on 'Hugh Herr' made by using Microsoft's web-search engine Bing, and an article from a Czech magazine from 29th of January 2014 ("Uřízli mu obě nohy, tak si vyrobil nové. Pohodlné a výkonnější," 2014). "They cut off both of his legs, so he made new ones: convenient and efficient" – wrotes the automatic translation of that article. The date and the title are relevant in context. The article is published before Hugh Herr's TED Talk presentation and it is written without even mentioning bionics.

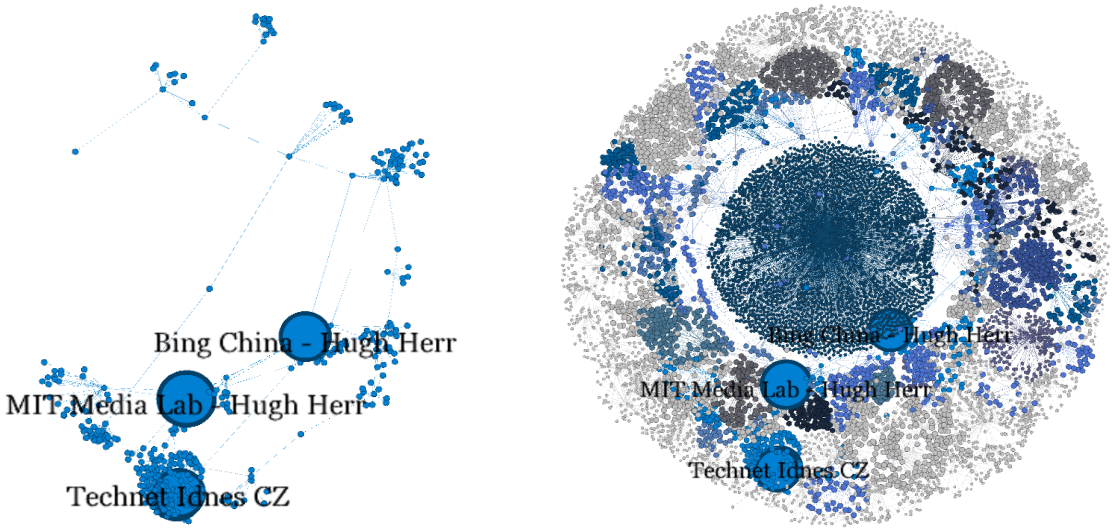

Figure 4 Community 60 – 4.25 %, the fourth largest community on the network of sources about Hugh Herr.
To the left, a detailed visualization of the community. To the right, the relative position of the community within the whole network.

A more in-depth search of the sources within this network community revealed more articles written in languages other than English. A link toward a material rich in video presentations of Hugh Herr's work published on the website of the French TV Channel Arte ("Prothèses bioniques," n.d.) or the lenghty article also endorsed by a video materials made by the Canadian French-speaking publication Science Presse ("Steve Austin VS Hugh Herr : quand la réalité rattrape la fiction | Agence Science-Presse," n.d.) and all of these sources being connected to Hugh Herr's profile at MIT are conductive to the idea that this algorithmicaly constructed network community represents the web of Hugh Herr's international or global connections of his digital presence.

On a different approach to this community, and by attending to the other sources with a high value of centrality, the perspective opens up to engenieering publications such as Perspectives 3Ds("Making a Dream Come True for A Boston Marathon Bombing Survivor | 3D PERSPECTIVES," n.d.) or Engineering.com. From these sources it is found that on designing the bionic prostheses the research group conducted by Herr has used a 3D simulator produced by SolidWorks, a company also mentioned in the Czech article. The article from engeneering.com also takes note of the use of SolidWorks in the process of design and the video materials used for illustrations are short in length but made as reference cuts where Hugh Herr presents the BiOM prostheses at first and defines his understanding of bionics in the second video-reference.

It is also in here where the autonomy of these prostheses is made explicit: "next steps for BiOM include developing a new battery that will last longer than the current 3,000 step capacity. Hugh also wants them to develop a longer life for the mechanisms themselves, which have a life of less than 5 years. ("Engineer at MIT Media Lab Designed his own Bionic Legs > ENGINEERING.com," n.d.)." It is an information usually omitted by the more popular media outlets. With many international sources within this web of links, a better descriptor of this network community runs along the common thread of presenting the technical capabilities of Hugh Herr's innovative prostheses.

Community 91 – 3.42%

An audio material produced for the National Public Radio (NPR.org) and endorsed by a written article – 'The Double Amputee Who Designs Better Limbs' on NPR's website is the central node of this network community.

Published on August 10th 2011, and in a matter of hours, the material is shared by the user 'dyusem' on the 'General Discussion' thread of the web-forum Summit Post, a forum dedicated to mountaineers and rock-climbers. The thread is active for four days, six users posting comments in there from August 10th until the 14th. It is not something like the returning of the prodigal son, but the discussion in there might be considered as a re-appropriation with a sense of pride for the professional achievements of a fellow rock-climber.

As the NPR's audio material tells Hugh Herr's story from the moment of his mountaineering accident on, and even though most of the commentators are relating with Herr's technical innovations in the field of prosthetics, they act as knowledgeable of his life and career. The user 'Fred Spicker' is mentioning about Hugh Herr's biography 'Second Ascent' written by Alison Osius and published in 1991, at a time when Herr was a graduate engineering student at MIT. Another user brings in the subject about Herr's contribution in convincing the Olympic Committee to allow Oscar Pistorius, a bilateral amputee to run in the athletic competition by using a spring-like 'Cheetah' prosthesis.

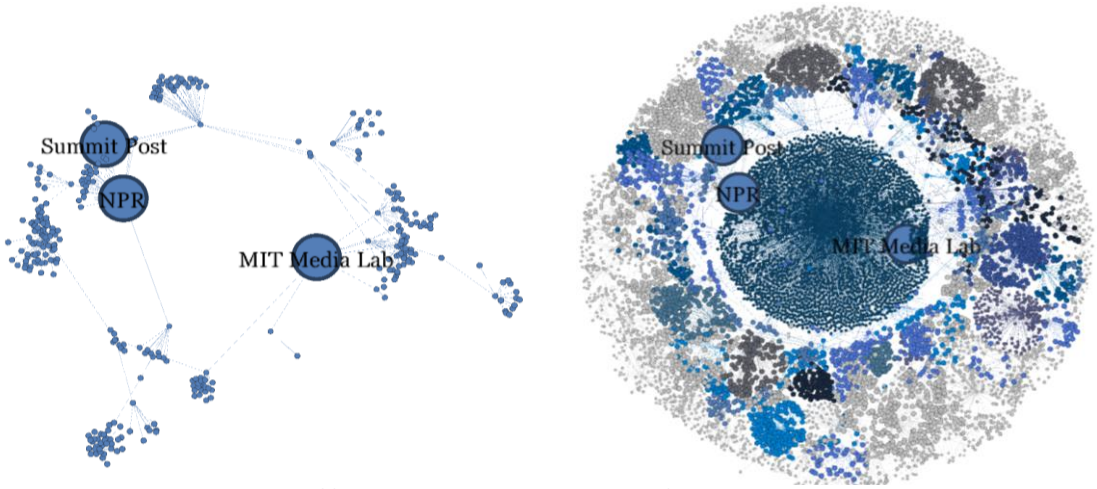

Figure 5 Community 91 – 3.42 %, the fifth largest community on the network of sources about Hugh Herr.
To the left, a detailed visualization of the community. To the right, the relative position of the community within the whole network.

There is also recalled a traumatic event that remains of central relevance for the community of rock-climbers. The event is mentioned by Herr in his interview, but it is also reinforced by a commentator: "Every time I see an article about Hugh Herr, I give a thought to Albert Dow, one of the SAR's who went out looking for Herr on Mt. Washington. Dow died in an avalanche during that search. Not trying to dredge up a discussion about this incident – from what I have read Herr is very accomplished and deserves his accolades. Just thought Dow deserves to be remembered too. – kozman18 ("Hugh Herr: The Double Amputee Who Designs Better Limbs : General," n.d.)."

Similar with the previously presented network community, the strongest ties of the network are not telling the full story of that community. The web-links that are scoring high in centrality are also the sources that are using audio materials in their presentation of Hugh

Herr: a 9-minute long audio material of 'Becoming the Bionic Man' published on the web-site of WNYC 93.9FM radio station; a TED Radio Hour material 'How Do You Reinvent Yourself After a Near-Death Experience?' (14 minutes) at the same radio station. The exact same material is also broadcasted by WUNC radio station as "Part 3 of the TED Radio Hour episode Transformation"(Staff, n.d.). The list is completed by Jemima's Kiss article for The Guardian – 'What if a bionic leg is so good that someone chooses to amputate?' – where in the first lines of her text she is referring to another audio material form the presentation given by Hugh Herr at the 2015 SXSW Conference (Kiss, 2015).

Community 73 – 3.39%

The elements of centrality within this network community are represented by The Biomechatronic Research Group at MIT, the home page of TED.com and the website kurzweilai.net. The 'ai' at the end of the link stands as an abbreviaton for 'accelerating intelligence,' a concept proposed by Raymond Kurzweil, a computer scientist and transhumanist advocate, where transhumanism can be understood in its most straightforwoard definition offered by The Oxford Dictionary as "the belief or theory that the human race can evolve beyond its current physical and mental limitations, especially by means of science and technology.("transhumanism - definition of transhumanism in English from the Oxford dictionary," n.d.)

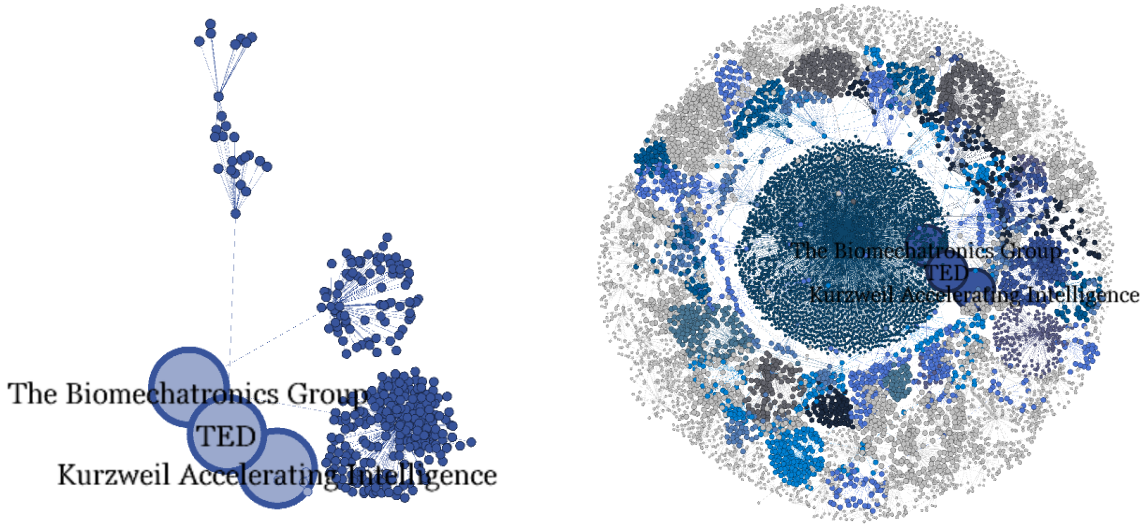

Figure 6 Community 73 – 3.39 %, the sixth largest community on the network of sources about Hugh Herr.
To the left, a detailed visualization of the community. To the right, the relative position of the community within the whole network.

As it can be seen from the map, the TED.com node, without being one of the Google Scrapers list sources of inquiry is assuring the connection between the nodes more clustered with other web-sources that revolves around The Biomechatronics Research Group and the large networked group built around the website that is playing as an advocacy platform for transhumanism, namely kurzweilai.net. The article on that platform is tagged under the topics of 'AI/Robotics' and 'Human Enhancement' respectively. The connection with TED.com is made through a video link toward Hugh Herr's 2014 presentation on bionics. Compared with Community 60, presented before, where for an engineering magazine Hugh Herr is asked to offer his own definition of bionics, the web sources from this community are using the 'bionic' term as early as 2010: 'Bionic Legs, i-Limbs, and Other Super Human Prostheses You'll Envy' – an article from January 2010 for the website Fast Company (AM, 2010); or 'The Bionic Man Who Builds Bionic People' for the November 2010 issue of Discover Magazine ("The Bionic Man Who Builds Bionic People | DiscoverMagazine.com," n.d.).

Only from analyzing a limited number of data points, and without a clear time-stamp of Hugh Herr's initial use of the term 'bionic,' the majority of the sources connected with kurzweilai.net are adopting an enthusiastic tone regarding technological capabilities for the improvement of human lives.

Conclusions

The perspective offered by the network communites is made perceptually available only by the use of some specific digital tools of internet research. The statistical algorithms of network analysis are the ones that are operating delimitations between the data sources, where the observation of the data sources that are contributing in the construction of Hugh Herr's digital persona are made somehow from above, or in postphenomenological terms, a 'God-like' disembodied type of perception (Ihde, 1990).

In terms of method, it is one of the perceptual variatons attempted in order to engage with Hugh Herr's digital presence. If the first network community qualifies of an anomaly, by the misuse of the digital connectors, and the second community appears as a hodge-podge of sources ranging from Hugh Herr's digital profiles to inspirational videos or digital

connectors, from the third community on, some structural features are emerging. From the international community that is somehow asking Hugh Herr for his own definition of the term of bionics down to the transhumanist enthusiasts that are portraying him as The Bionic Man, passing by the community of rock-climber passionates that are aggregating toward a network community filled with the audio materials of Herr's digital presence.

The difference in perspective from a list-type of inquiry is set on a technical distance – the digital connectors being the hyperlinks used as cross-refferences. As the network analysis was used mainly for visualization purposes, not attending at some of the statistcal features of network interconnectivity, it is still offering a change of perspective on what was initially considered as the digital presence of a person. The web-architecture offers a complex image of human and non-human interactions.

The Performer

This section was initially constructed starting from the Google Scraper list of digital sources. With Hugh Herr's Wikipedia Profile at the top of the list it was also the first to be analysed. The network structure of digital sources was also taken into account, but not as much as for visualization purposes as for what the community curated encyclopaedia considered as relevant sources for their profile. A visualization of list sources was analytically constructed to attend at what a web search engine is taking as relevant information – a visualization of the top 25 digital references on Hugh Herr. In order to surpass the algorithmically selected sources, an analysis of randomly picked sources followed aimed for a comparative approach of Hugh Herr's digital presence.

Hugh Herr's Wikipedia Profile

From July 24th 2009 to April 24th 2016 Hugh Herr's Wikipedia profile was revised 94 times. The revisions were made both by human and non-human agents. Within a seven year bracket the profile picture was changed once, and also the website address where Hugh Herr is to be found. In 2009 the link was set toward The Biomechatronics Group, where in 2016 it opens up to a dedicated profile at MIT Media Lab.

There are also changes made for Hugh Herr' occupation and field of study. An academic, engineer and computer scientist in 2009, now he is presented as a biophysicist, where the

computer scientist is not use as an occupational descriptor anymore. A new field of interest (study) is added to the initial profile – mechanical engineer – placed in between biophysics and physics.

The opening sentence has been changed from “an American [[engineer]] and [[computer scientist]]” to “an American rock climber, [[engineer]], and [[biophysicist]]”. The double squared-brackets are indicating a Wikipedia hyperlink toward an article covering that respective term.

The parenthesis mentioned before are relevant, as one of the changes between the initial to the current version of the profile is made by an increased number of hyperlinks. It is not as much as the text was modified, but also how the profile was linked within the Wikipedia network. Common terms such as ‘toe’, ‘leg’ or ‘knee’ are interconnected with their digital-encyclopaedic entries.

The “Early life” section of the profile presents an apparently unmodified text: “The youngest of five siblings of a [[Mennonite]] family from Lancaster, Pennsylvania, Hugh Herr was a prodigy rock climber: by age eight, he had scaled the face of the 11,627-foot Mount Temple in the Canadian Rockies, and by 17 he was acknowledged to be one of the best climbers in the United States.”

The current version has links not only toward Mennonites, but also to Lancaster, Pennsylvania, Mount Temple, Canadian Rockies and even to United States, where the height of the mountain as it is expressed in feet links toward a metric convertor.

On the part dedicated to Hugh Herr’ career, the emphasis is changed from human enhancement toward an altruistic attitude. The initial formulation: “Currently, Herr is an associate professor in MIT’s Program in Media Arts and Sciences and in the Harvard-MIT Division of Health Sciences and Technology. As head of the Biomechatronics research group at the [[MIT Media Lab]], he focuses on developing wearable robotic systems that serve to augment human physical capability(“Hugh Herr,” 2015).”

Later on it is added the following concluding remark: “Most of what he designs is not for him, but for others to whose difficulties he can relate.(“Hugh Herr,” 2015)”

As for “Notable Grants and Awards” section, two new accolades are listed: The R&D Magazine’s 2014 Innovator of the Year; and The Smithsonian magazine's American Ingenuity Award (2014), both in the Technology Category.

His career as a mountaineer is part of both versions, with an enhanced emphasis on the current one, where a new profile section was added for accomplishments: “Notable rock climbs” It is a part in which Hugh Herr’s most important climbs are presented in chronological order.

Part of Wikipedia’s network, Hugh Herr profile is linked to the following categories:

1. [[Category:1964 births]]
2. [[Category: Living people]]
3. [[Category: American biophysicists]]
4. [[Category: American engineers]]
5. [[Category: American people with disabilities]]
6. [[Category: American rock climbers]]
7. [[Category: Harvard University alumni]]
8. [[Category: Massachusetts Institute of Technology alumni]]
9. [[Category: Millersville University of Pennsylvania alumni]]
10. [[Category: People from Lancaster, Pennsylvania]]
11. [[Category: American amputees]]

All the categories mentioned above were not part of the initial profile. On closing the distance between what is Wikipedia’s network design of connecting the sources the categories are also telling about a cultural structure. Atop are biographical identifiers, followed by a list of national identifiers. Hugh Herr’s academic studies are listed together, where the geographical location ranks lower. As the results were taken with a digital tool that investigates the differences between the changes made to the page in time, the category of ‘American amputees’ was later added in the profile construction.

As an anecdotic side note, but of relevance for human and non-human interactions in a dynamic process of a collectively constructed digital profile, is a series of three contributions. Two pieces of information were added to the profile by Hugh Herr's wife, only to be discarded by a bot-crawler the next day as either irrelevant or spam.

Wikipedia's References

As Hugh Herr's Wikipedia profile is part of a wider network, the next investigative turn was set for an exploration of those hyperlinks, digital sources embedded in the profile's body of text. By using the software Link Ripper, a number of 257 links were found: 255 external links, connecting the page with web addresses outside Wikipedia, and 2 internals. The data output was then opened in Gephi for a network visualization. The network has 228 nodes and 227 edges, a situation that rendered all the external sources connecting to the central digital object, namely Hugh Herr's Wikipedia profile. Still looking for an understanding of how the page is positioned in a wider network, the initial 257 links were analysed with the software GeoIP. One of the features of the software is that it shortens a web address to its host domain. A simple overview of the data showed that 225 of the 257 links were connected with the web domain www.archive.org, a website that acts as a repository of older digital data.

In order to have a picture of how the Wikipedia profile relates with other sites, and by excluding the oversized link toward the digital archive, a frequency list of the remaining domains has produced the following Wordle visualisation:

Figure 7 A Wordle visualization of the main web-domains connected to Hugh Herr's Wikipedia profile

The most connections are made toward the MIT Media Lab, Hugh Herr's work place, but the relevance of the institution as an informational contributor to Hugh Herr's digital profile is given by the fact that two other digital addresses are connecting to the same institution: the 'biomech.media.mit.edu' and the 'web.mit.edu.'

The first links with the Biomechatronic Research Group at MIT, where the second to the MIT's News web-site, where an article from 12th of September 2007 announces Hugh Herr as the winner of the Heinz Award.

From the visualization above it can be seen that the Wikipedia article also connects to the digital address of the Heinz Awards. The links to 'media.mit.edu' is used twice for accessing Hugh Herr's profile page at MIT, and once to announce the findings of a research team led by Herr regarding the use of Cheetah Flex-Foot prostheses by the South-African athlete Oscar Pistorius.

The YouTube appears as an external source three times, where the links are connecting to two materials. Within the Wikipedia article the hyperlinks are connecting twice to a short, 2-minutes video presentation of the National Geographic documentary: "Ascent – The Story of Hugh Herr." The second material is a presentation made by Hugh Herr in 2012 at the conference Zeitgeist Americas, titled "The World We Dream" and available on ZeitgeistMinds Youtube channel where it was uploaded on October 16th, 2012.

Before presenting the sources any further, it has to be noted that of the 32 external sources two were found to be broken. One toward the Italian edition of Wired Magazine, and the other in relation with an article published in SeattlePI. This information was conductive to an observation, a relative delocalization of digital sources. The Italian magazine is digitally located in Dublin, Ireland, where the SeattlePI is using an address from San Antonio, Texas. With only two sources located outside of the United States, a geographical localization of the digital sources, is shown below:

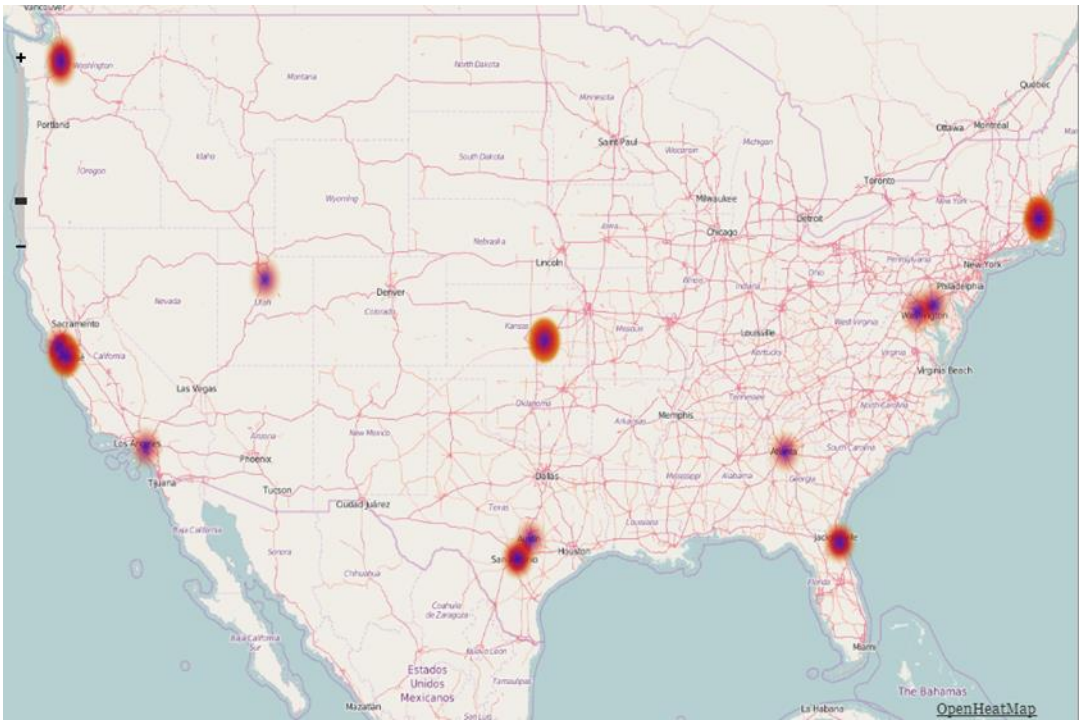

Figure 8 Heat Map on Hugh Herr's Wikipedia Profile External Web-sources

On the flip side, Boston Magazine has its digital location in Seattle, Oregon. The heated dot on the East Coast is represented by Cambridge, Massachusetts, the headquarter of MIT – 4 web-links. On the West Coast, the San Francisco Area has an equal number of links, YouTube and Time Magazine being digitally located there. 9 of the 31 sources where without a traceable city location, among them R&D Magazine, Popular Mechanics and Technology Review.

The heat map built on geographical coordinates is not as relevant on tracing Hugh Herr's digital profile. Still, the visualization reveals the areas where technological development and innovation are a subject of constant interest. If a first attempt of mapping the network of information that Hugh Herr's profile is built upon, a different tactic was employed. Also by using Link Ripper, the references for the Wikipedia article (primary sources) were searched for external links. The idea behind this tactic was to identify if those references were somehow interconnected. Link Ripper's output was uploaded in Gephi. The pool of data uploaded this time showed for a network with 1558 nodes and 1783 edges.

After calculating the modularity of the network (0.849) with a resolution of 5.0, a number of 9 data communities were found. They were coloured accordingly. For the map spatial distribution, a Fruchterman Reingold algorithm was used, with a size area of 1500, and gravity of 5. The size of node was set by their degree values within the network. For visualization purposes, two nodes at the centre of the map were artificially enlarged – the violet dot right above 'Technology Review' and the orange dot below 'MIT Media Lab.' They are the nodes with the highest betweenness centrality values, meaning that they are the main connectors of the entire network. Both of them represent links toward the digital repository www.archive.com.

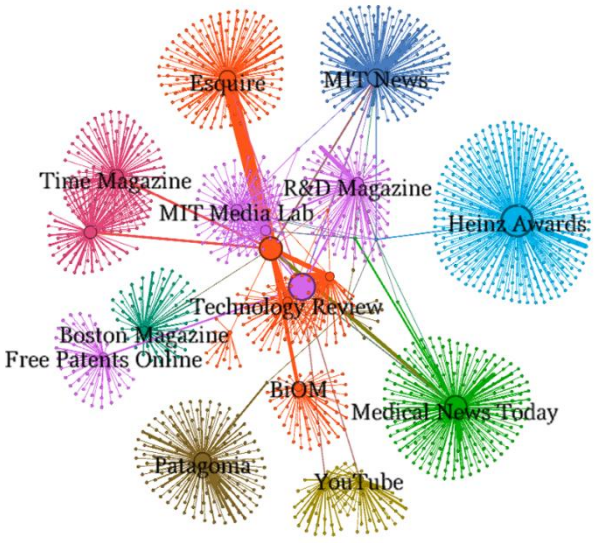

Figure 9 Gephi Visualization of Hugh Herr's Wikipedia profile external sources

Considering the modular similarity of the data, two interconnected communities were identified. First is the orange one, that connects the two articles from MIT Technology Review with Hugh Herr's profile as a founder of BiomX and an Esquire article from November 2006 titled 'Hugh Herr's New Parts'. The MIT Technology Review pieces are published one year apart. The first article on May 11th 2007 – 'The World's First Powered Ankle' is written as a presentation for the new computer assisted prosthesis, as it is the first "that allows for a humanlike gait," with Hugh Herr being quoted within the article (Singer, 2007). The second source is an interview from May 21st 2008 given by Hugh Herr as a rebuttal of the research on which IAAF (International Association of Athletics Federation) refused the right of South-African athlete Oscar Pistorius to run with his use of Cheetah prostheses, a spring-like type of prosthesis. As for the connection between the 2006' article in Esquire Magazine about Hugh Herr's 'new parts' and the first MIT Technology Review article the subject connection is somehow obvious, and it makes sense also for the network

links toward the profile of Hugh Herr as a founder of BionX, where he is introduced as "a leading visionary in the research and development of Personal Bionics ("Board of Directors - BionX Medical Technologies," n.d.)." The weak ties between MIT Media Lab with the mentioned before digital community, and the non-existent ties with the mass-media branch MIT News are surprising. One last word about the orange community depicted on the map, all the digital sources are developing strong connections with the digital archive.

A second algorithmically similar network community was identified by the connections between The MIT Media Lab as an institution - Hugh Herr's personal page in there – and the R&D Magazine announcement for the 2014's recipient of Innovator of the Year Award, where he is presented as "head of the Biomechanics research group at the MIT Media Lab ("R&D Magazine Announces Scientist and Innovator of the Year Award Winners," n.d.)." The free patent web-page is indirectly connected with this community through a web-archive node.

Within the network, a type of interconnectivity can be spotted for the popular magazines, Time Esquire, and The Boston Magazine are linking their articles with the digital archive. MIT News and Medical News Today are to be seen as entities that are connecting beyond the boundaries of their own algorithmically built community. The Patagonia page from a web-site dedicated to rock-climbing has no ties beyond their topic of interest, and the two YouTube videos of Hugh Herr are occupying only a small part of the entire network, being also connected to the digital archive. The case for The Heinz Foundation as there are announcing Hugh Herr as the winner of their 2007' Award is to be noted. As MIT News is announcing Herr as the recipient of the award in an article two months prior to the event, the two sources are interconnected, but the model preferred by The Foundation is to rely more on their own external links. The small part within the network occupied by the Boston Magazine comes as a surprise. The article is one of the oldest sources linked to Hugh Herr's Wikipedia profile, and it is a long and comprehensive biographical piece written by Eric Adelson for the March 2009 edition of the magazine, covering both Hugh Herr's life and career. It might also be seen as illustrative for the ways in which media was transformed

by the digital. As a well-documented material, it plays more on the pattern of a classical written publications with not as many digital connectors (hyperlinks).

An indirect comparison between Hugh Herr's Wikipedia profile and the one possibly personally curated at MIT revealed a difference of source selection. If the Wikipedia profiles relies heavily on digital sources from around the time the profile was initiated, the MIT profile is regularly updated. It might be inferred that, for a community curated profile, once it attains a comprehensive level of relevant sources it somehow solidifies its contours, where a personal involvement in the process of constructing a digital profile is more active, more open to emendations. The last remark is made on comparing the actual profile of Hugh Herr at MIT with the initial one, a comparison made possible by using the historical digital repository www.archive.org

Of the most relevant Google Scraper results

The first step in analysing the most relevant results on the 'Hugh Herr' inquiry made by using the Google Scraper web-search engine was to build a network visualization of those sources (Figure 10, below). A similar geographical distribution of sources by the location of their digital addresses was also recorded with the majority of addresses, 23 out of 25 connected to websites located in the United States. The exceptions are the Canadian digital location of the academic network ResearchGate, and an article hosted by the World Economic Forum's website, in Geneve, Switzerland. A heat map visualization was considered unnecessary as it would have rendered only redundant information.

As for the digital map, the same step-by-step investigative approach as on mapping Hugh Herr's Wikipedia references was also maintain in here. After selecting the first – most relevant results considered by Google Scraper, and by omitting the Wikipedia source, the data were passed to Link Ripper in order to identify the internal and the external links of those sources. The output was then taken into Gephi. Most of the attributes used in the construction of the first map were employed again. The size of the new network has 2307 nodes and 2325 edges, and for a calculated modularity of 0.88 at a resolution of 5.0, the software has identified a number of 17 different communities. From the 11th algorithmically constructed communities found on Hugh Herr's Wikipedia profile only four of them are to be found in the new configuration: the MIT Media Lab, Time and Boston Magazine and the Technology Review website. Of the widely known and popular social networks Twitter and Linkedin are present in the new configuration, where Hugh Herr's profile on Research Gate covers more than 5% of the entire network. The largest identified community in terms of network coverage (18.64%)

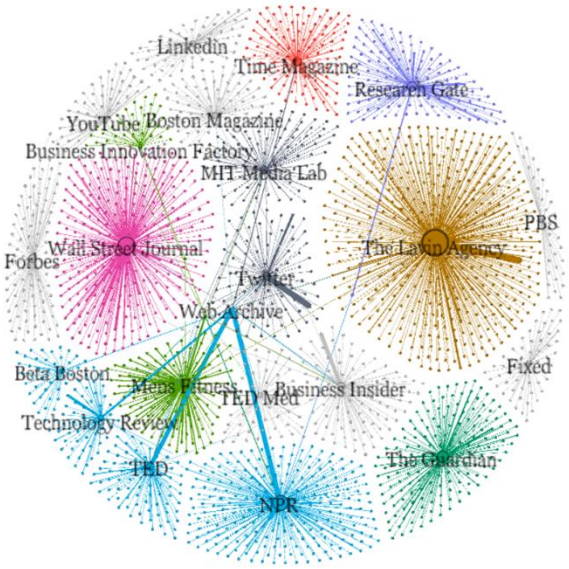

Figure 10 Gephi network visualization of the 25 most relevant sources on a 'Hugh Herr' inquiry (Google Scraper source list)

is taken by The Lavin Agency, a company that intermediates public speakers for different events. It is how Hugh Herr's avocational career as a public speaker is to be encountered. Hugh Herr's digital presence on this community is mainly built around the company's internal links.

The strategy of relying more on internal sources when relating with Hugh Herr's digital presence is used by the Wall Street Journal, the third largest community within the network. Same for The Guardian, Forbes and PBS. A more interconnected approach can be seen on the community comprised of NPR, TED, Technology Review and Beta Boston, either directly, cross-linking their materials on Hugh Herr, or mediated by the use of the Web Archive. It appears as a surprise the lack of connectivity between TED and its medical branch TED Med. The light-blue community of the digital map also connects with Business Insider and Boston Magazine, and there is also a connection with Research Gate. The YouTube presence of Hugh Herr is linked either to his former career as a rock climber, the light green community, or to TED Med, where he is giving a presentation.

On random digital sources

The idea of building up a digital portrait from a number of random links was meant to avoid or somehow surpass what a pre-programmed search instrument considers as being relevant. there is no statistical or quantitative reasoning behind this process of selection. Picking up the links at random gives an equal chance of selection to any of the links previously fetched by using Google Scraper. These pre-defined choices of selection were made in order to offer to the descriptive construction of a digital portrait a large enough volume of information for the consistency of writing up those random portraits. Also, by having a larger amount of data, there are the similarity and differences that might be address between different versions.

The same process of mapping was used for another three, equal in volume (25 sources) but randomly picked web-links from the data pool of the initial inquiry. Even the same colouring palette was used to identify the size of the communities within a network.

In the first scenario, the Heinz Awards are occupying the largest portion of the network, and where the announcement made by MIT News site is not part of the selection, the link

remains isolated with its own internal link-connections. The second largest community for this selection is represented by an article written for the website My Hero. Attending to that source prior of any mapping approach to data, a note was made, without much consideration for the possibility of having a visual representation of the network: 'It is the richest illustrated article found thus far, with four images. The page also offers a number of 5 related links, one toward a rock climbing magazine, second toward MIT's Media Lab, a link to MedGadget (The internet journal of emerging medical technologies – for more about PowerFoot), one toward Hugh Herr's alma mater – Harvard Biophysics, and the final link to a similar story from The MY HERO Project. The author also offers a bibliography, where the first source is Hugh Herr's profile at MIT and the second an article signed by Eric Adelson for the Boston Magazine – Best foot forward. The source is the richest one encountered thus far also in terms of linkages and connections the it offers.'

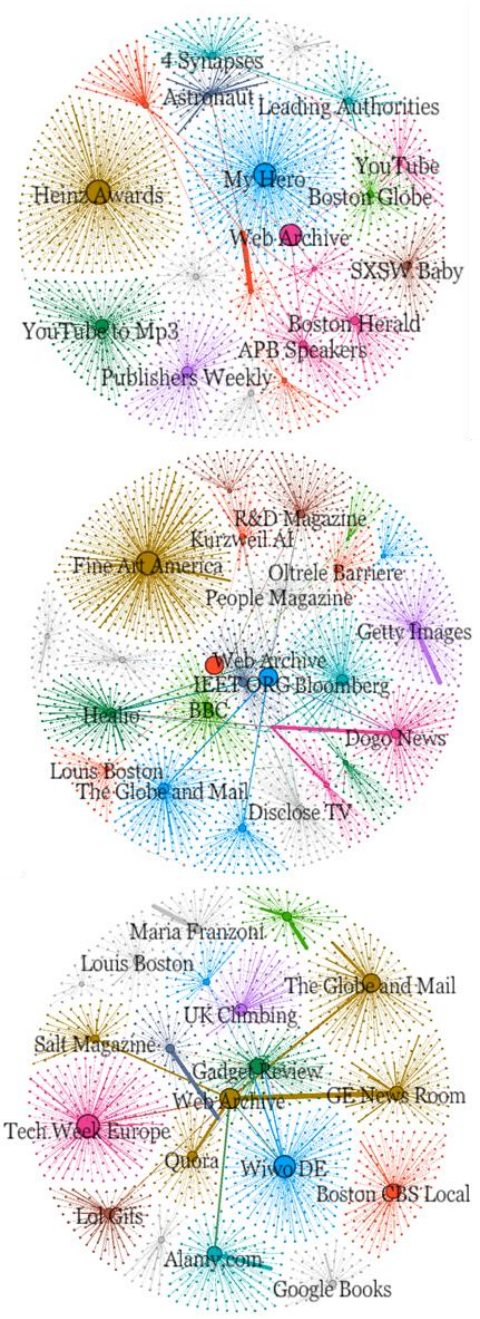

Figure 11 The Gephi Visualization of three randomly picked data pools (25 sources) of Google Scraper list

The third community in order of size links together an article from the Boston Herald with Hugh Herr's profile for APB Speakers, "A Global, Celebrity & Entertainment Agency." Apart from other similar companies that tend to relate more on internal digital sources: 'On the right side of the picture, two tabs are guiding toward topics and videos. As topics: Ascent: The Story of Hugh Herr; Technology & the Human Spirit: Merging Body & Machine; The Limits of Human Performance. Where the videos are: Ascent and Freescale Technology Speech.' Thus, the tight connection with the Boston Herald

article is not made by accident: ‘Title: “Inspiring dance lets technology shine”. The article is dated March 22nd 2014, and its subtitle reads: “Courage and Bionics.”

The largest community in the second random scenario offers a new insight in how the digital presence of a person is constructed and acted upon. The address directs to Alexandra’s Herr sub-page on the online community ‘fineartamerica’. The link is to a portrait of Hugh Herr made by his daughter and uploaded on the 28th of January 2015: “This is a drawing of my dad, Hugh Herr. I drew this in 2014. This drawing is made with charcoal on charcoal paper” she writes.

Within this scenario, the second community – the light-blue network on the second map – connects two apparently unrelated sources. ‘Disclose.tv – Truth Revealed’ a website focused on historical or science and technology’s conspirative theories with the respectable Canadian publication The Globe and Mail. The connection is made in relation with the digital repository, adding to the relevance of networks that are constructed with an awareness for the storage of digital information.

The third community of the second scenario connects the technological enthusiasts form Kurzweil AI with an Italian blog dedicated to the cause of overcoming disabilities. The transhumanists’ promise of eradicating disability by the use of technologies is not without an echo.

The third scenario has the most web sources interconnected in its largest community. By using these artificial random selection of sources, an aspect that was not revealed by approaching the entire list of sources was made apparent. Within this small sized data pools, it was easily identifiable which sites are connecting to the digital archive and which are not doing it. Large and popular publications are usually making that connection, where technical and scientific publications not as much. By a thorough search of data sources, Hugh Herr’s avocational career as a public/motivational speaker was also spotted. Those sites are relying on a close-community model of digital interaction, not linking with external sources but constructing a dense web of internally connected sources. The same model, later on was seen with the video materials published on the TEDTalk channel on You Tube.

The Audiences

There are two necessary parts for every social performance: the performer and the audience. For the digital presence of a person to be complete, the audiences to whom that person is exposed to are of equal relevance. The process of data selection was influenced by the available digital tools in order to delineate the contours of those audiences. An emphasis was placed on the video recordings of Hugh Herr's performances, as they are the most perceptually rich materials for a digitally mediated experience. The technical features that are making possible an interaction between those materials and an audience, the possibility to react to those digital objects, either by comments or through other forms of interaction (the evaluation of a material, e.g. like/dislike) channelled the inquiry toward YouTube video materials. The You Tube Data Tools (YTDT) from digitalmethods.net ("YouTube Data Tools," n.d.) makes possible to build a network of video sources on a particular inquiry, and also enables a search within the comment section of a material.

A Network of YouTube Sources

The 'Video Network' module was used for an inquiry of 'Hugh Herr.' As the You Tube network is organizing its materials through a 'related videos' structure, the visualization of the relationships between materials related with Hugh Herr's digital presence was the first step for having a perceptual overview of that presence, or a digital landscape for his inscribed, digitized expressions.

The query on YTDT was made for a number of two iterations in the search for relevant videos of Hugh Herr, ranking them by 'relevance.' With the depth of the crawl set at 1, as the search aim was of mapping the relevant video materials of Hugh Herr on a wider landscape of interaction between digital objects: "crawl depth specifies how far from the seeds the script should go. Crawl depth 0 will get only the relations between seeds. Using many seeds and the maximum crawl depth (2) can take a very long time or the script might run out of memory ("YouTube Data Tools," n.d.)." Afterward, the output of that query was transferred to Gephi for a network visualization and analysis.

The network thus obtained had a number of 1364 nodes or video sources, and 20050 edges, relationships that were predefined by You Tube's own structure of relatedness. As from before, when the list of sources retrieved from a Google Scraper query was presented, the process of drawing the map was done by using a Fruchterman-Reingold algorithm. A statistical modularity was calculated, and at a resolution of 0.681, it revealed a number of 33 network communities.

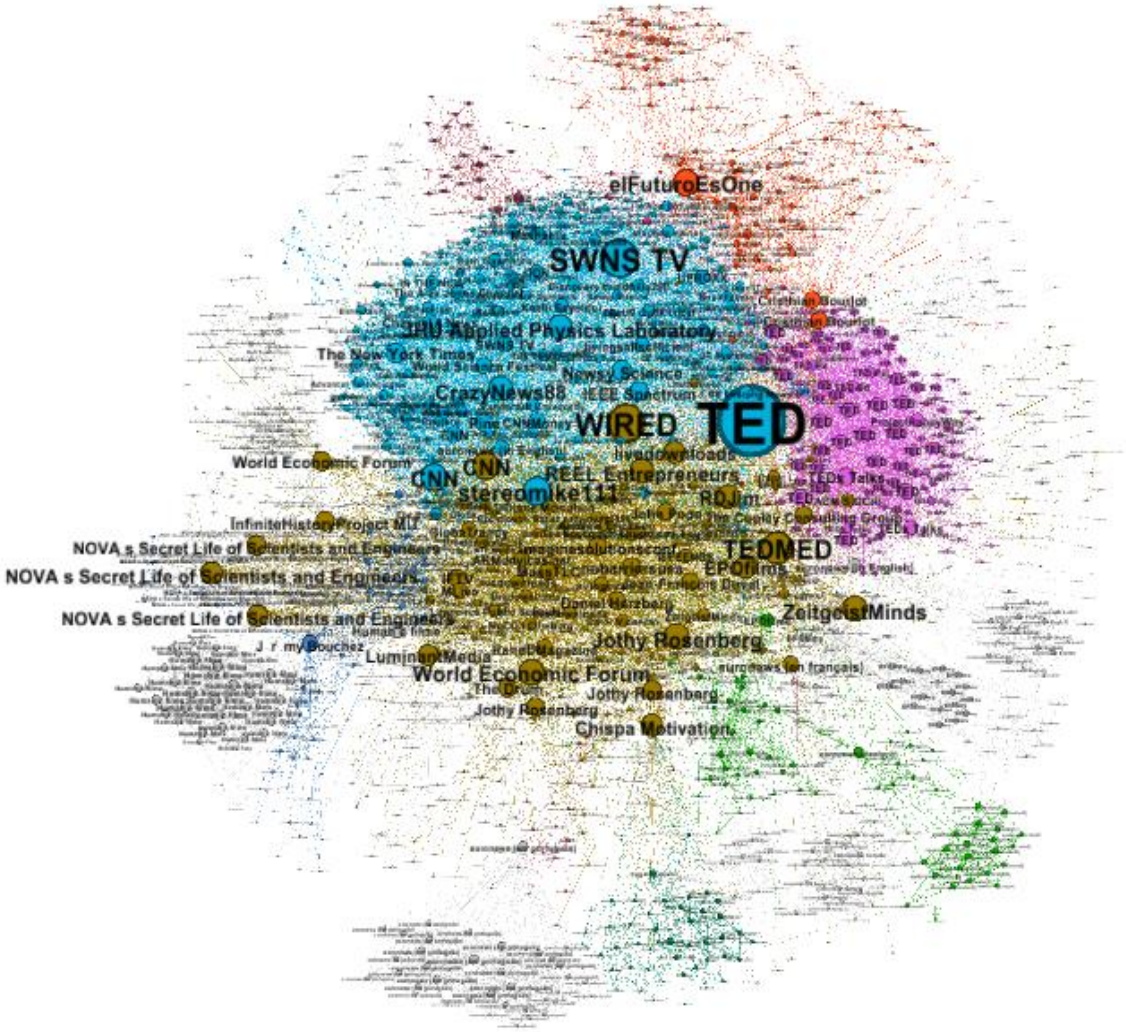

Figure 12 The Visualization of the network of video materials on a query made for 'Hugh Herr' with the YTDT Network feature.

For visualization purposes those network communities were differentiated by colour, the size of the nodes was set for 'degree,' as a measure of the total inter-relations (edges) a node has within a network, where the labels attached to those nodes are the video channels

from You Tube that are publishing a specific material. The You Tube channel identity was one of the values retrieved by the YTDT network search. With an already built familiarity with the data, the presence of Hugh Herr's 2014 TEDTalk presentation stays as the most salient node of the network. The network's community splits that were obtained through the use of modularity are to be further addressed.

The network communities depitcted below (Figure 13) are representing together 35.92% of the network nodes, websources, and there edges the inter-relations established between those video materials is even larger, accounting for 44.44% of the entire network.

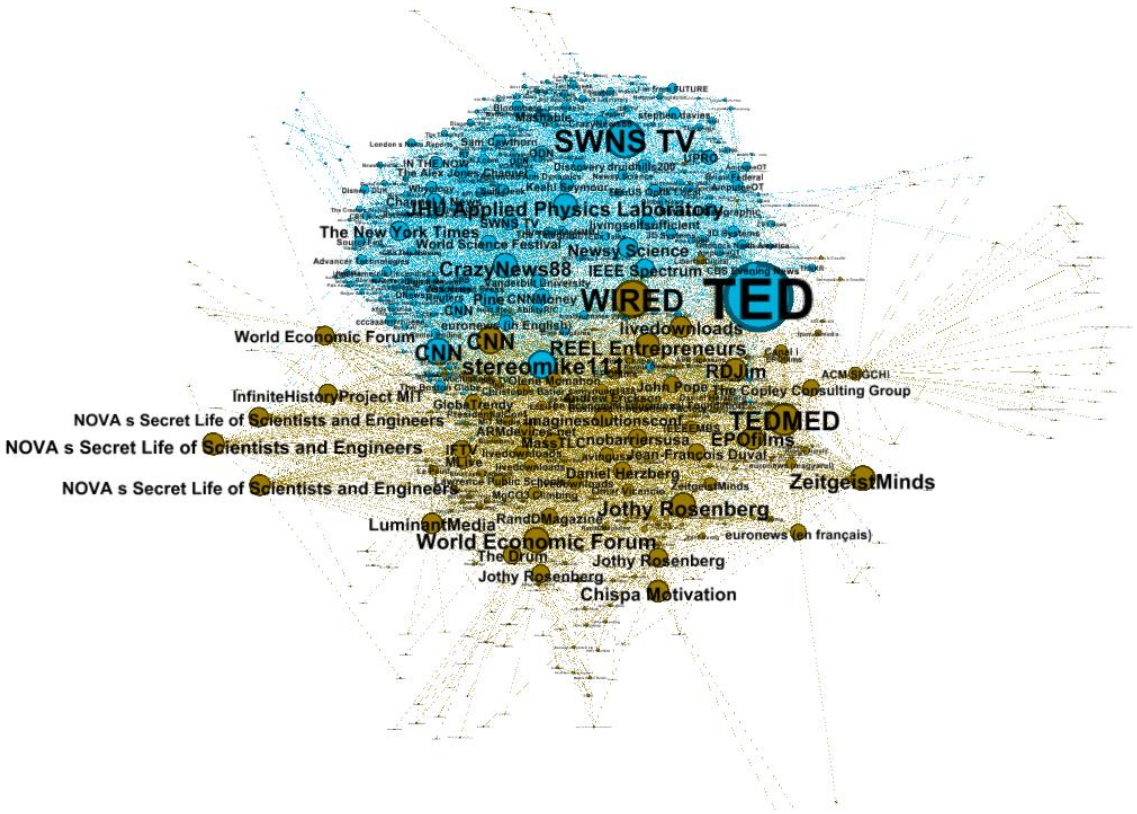

Figure 13 Map detail of the two largest network communities for the YTDT query on 'Hugh Herr'

The largest community is the one at the bottom of the map, where the most salient video materials are Hugh Herr's 2010 presentation at TED Med and a video produce for Wired's video edition of Cyborg Nation: 'Can Prosthetics Outperform Real Limbs?.' As the size of the nodes are a relation of interconnectivity, the second communnity, although it features Hugh Herr's 'New bionics that Let Us Run Climb and Dance' presentation for TED, it also shows video sources where he is not present, the connections being made through the

subject of ‘bionics’: the SWNS TV video material ‘Terminator arm is worlds most advanced prosthetic limb’ or The New York Times material on Robotica: ‘The Bionic Man.’

The subject is not as much one of statistics and distributions as it is one of audiences, actual or potential ones. Another data split is made when a query is retrieved by an YTDT network search: the video categories of You Tube’s structure. On Hugh Herr’s query the most salient are ‘Science & Technology’, ‘News & Politics’ and ‘People & Blogs’ these three covering more than two thirds of the entire network (69,85%). Still, there are video materials that are places under other categories such as ‘Education’, ‘Entertainment’, ‘Nonprofits & Activism’ or ‘Sports.’

This additional information has its own context. The first module shows a more heterogeneous distribution over the categories, where the second module relies heavily on materials categorized either as being part of ‘Science and Technology’ or ‘News & Politics.’ For example, Jothy’s Rosenberg materials within the first network community – ‘Who Says I Can’t – Hugh Herr.’ Jothy is a fellow rock climber and amputee and the videos on his channel are tagged in the ‘Sports’ category. There is also a video source ‘Believe’ published by Chispa Motivation channel that uses in the construction of their material a narrated interview of Hugh Herr on his personal and professional career. The channel is owned by an Argentinian who specialized himself in producing motivational materials, and Hugh Herr’s video is categorized by You Tube as educational.

The first network community acts as a sort of a techno-biography where different events from Hugh Herr’s life have their own audiences. The emphasis of this video materials is placed on Hugh Herr’s digital presence and presentations. As in a dramaturgical scenario, he has the leading part of the play. Not the same can be said about the second network community, were the main topic is split between two subjects, bionics and prosthetics. Even though, as the search query is made on ‘Hugh Herr’s’ name, for the community built around Hugh Herr’s 2014 TED Talk the attending audience is split between those who are engaging those materials for his part in them, and those that are there as part of a larger

community of media consumers. The last interpretation is endorsed by the entire distribution of video materials within the network. The third largest community, the one positioned to the right (or East) of Herr's most salient video material (Figure 7), the purple network community is mainly composed by TED or TEDTalk video materials, most of them sharing with Herr only their common use of a TED stage for their presentations.

The difference between an audience dedicated to Hugh Herr's presence and one constructed around a topic or a media channel is made apparent by the data in the following table:

Module 1	Like Count	Comment count	View count
Can Prosthetics Outperform Real Limbs? | Cyborg Nation	3003	185	182523
Hugh Herr at TEDMED 2010	1316	264	95995
Designing robots to attach to humans	162	13	27206
Biomechatronics| Hugh Herr	104	2	6605
Who Says I Can't Hugh Herr full episode	191	22	17236
The World We Dream- Hugh Herr Zeitgeist Americas 2012	425	30	33652
The Innovators: Dr. Hugh Herr Director Biomechatronics at MIT	50	0	7522
Hugh Herr - Thug Life	68	6	6545
Hugh Herr - Biomechatronic leg joints	14	0	1449
30 Second Science: Hugh Herr	10	1	1655
Module 2			
New Bionics Let Us Run Climb and Dance | Hugh Herr | TED Talks	51252	4827	3503652
Terminator arm is world's most advanced prosthetic limb	46900	9762	5918187
You wouldn't realise he's wearing an artificial leg	1970	104	221268
Bionic limbs transform lives	108	31	10449
Bionic Legs Eyes Arms and Other Super Human Prostheses	269	24	69126
Amputee Makes History with APL's Modular Prosthetic Limb			2842592
Researchers Walk Out First Mind-Controlled Prosthetic Leg	351	75	86717
The Bionic Man | Robotica | The New York Times	5918	828	554227
A Robot Ankle for Amputees	317	58	50900
Top 5 bionic arm	1195	165	264194

Table 1 The YouTube videos on the Video Network inquiry for 'Hugh Herr'. The data is sorted by network modularity. (Results as of June 5th 2016)

The YouTube videos on the Video Network inquiry for 'Hugh Herr'. The data is sorted by network modularity. (Results as of June 5th 2016)

The video materials, with their titles are arranged by their level of interconnectivity, a high 'degree' value. From the two sections, the volume of the audiences is telling about the difference in their structure. The 'New Bionics That Let Us Run, Climb and Dance,' – as the most relevant video source on YTDT's search – scores lower in its view count than a material dedicated to a bionic arm, even with the endorsement of TED's public. Where the second most important materials, ranking second and third by degree, the 2010 TED Med presentation and the Cyborg Nation's video have way lower scores both in audience and

in engagement, the number of comments for a particular material. An in-depth analysis of the commentators revealed that they are somehow bond with a particular web-channel than to be connected either to Hugh Herr's digital presence or to the subject of bionics. From the 2010 TED Med presentation only five persons followed Herr and left a comment on the 2014's highly viewed and engaged presentation on bionics. From the community at Cyber Nation there were ten commentators whom left a comment on both sections. As for the triangulation of sources, there is no one engaged on all those threads of comments.

The 2014 Hugh Herr's TED Talk

An in-depth analysis of the audiences was made for Hugh Herr's 2014 TED Talk presentation: "The New Bionics That Let Us Run, Climb and Dance." As the video was whatched more than 3.5 milion times on the You Tube channel alone, and with close to 5000 comments the 'relevance' criteria was once more engaged. The resoning for an attentive analysis of this large pool of commentators was also enforced by also by the

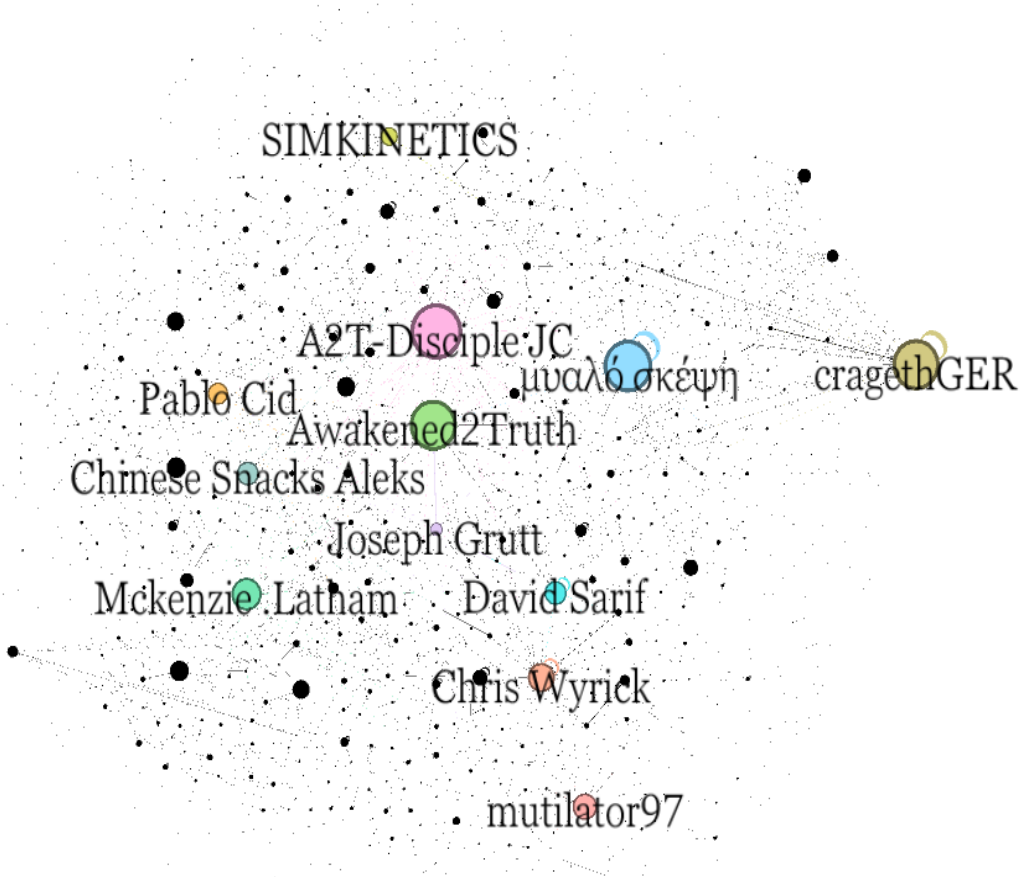

Figure 14 A Gephi visualization of the network of commentators - 2014 TED Talk

numerous instances when the video was linked by other sources. Its networked centrality being alredy shown in the previous section.

The audience is large if it is to be considered on the number of viewers. Also the engaged audience is large by the number of commentators. The assessment for a community of commentators is still hard to be made. The Gephi visualization of the network of commentators shows the most active and engaged participants. The size of the nodes is a measurment of their interconnectivity – a high 'degree' score. At the centre of the map, the user Awakened2Truth. As the comment tread might read, many times he was engaged by others only to be scolded as a troll. A self-declared bioconservative christian, the user most often has long, convouluted arguments against human enhancement and transhumanism.

Most of the salient commentators from the map are endorsing strong convictions either pro or against controversial subjects. It is in the loose nodes, the less connected ones where Hugh Herr remains at the centre of the stage, usually with a word of appreciation for his personal or professional achievments. On these nodes it is more common to be found an emotional expression addressed either to Herr, or to Adrianne Haslet-Davis, a professional dancer, amputee and in her own words, 'a survivor of the Boston Bombing marathon.'

> that's why I LOVE science instead of stupid, USELESS and imaginaries GODS. man this was beautiful, i cried... since i was a kid i always dreamed to be alive enough to see people involved in some accident and having a second chance in life to live with dignity and not seen just like some useless invalid ï»¿ - *Mind Thought*

Published in December of 2014, this is the most appreciated and also most commented post. A comment tread built on a constant controversy between science and religion. Other highly commented posts were addressing themes regarding the availability of the technology in terms of economic constrains and medical coverage. The subject of wars as a 'beneficial' cause for technological improvements was also a theme, where some other posts were bordering the techno-fantasies of cyborg experiences, posts also endorsed by video-games experiences or science-fiction literature references.

Beyond the topics on which commentators were engaged on, the way a You Tube channel is designed brought a new insight on the technical features of social/digital interaction. Intuitively, the number of views and comments was thought of having a peak in the days following the publication of the video material, and a steadily decreasing audience from that moment on. It was not the case, as some of the most engage treads were started even two years after the publication. A shuffling built-in feature makes a constant shift of the comments that are directly available the perceptual field underneath the video material. Thus, channeling people to react at times to what is in front of them. This aspect of an alteration of social interaction is enhanced by the duration of a digital object.

Chapter 5: Discussion and Conclusions

An ethnography built around the digital presence of Hugh Herr, through all the web-sources engaged in the process of data collection and analysis might easily find its narrative arc, as it is aptly coined by Alison Osius biography of Hugh Herr: a second ascent (Osius, 1991). There are a series of events that are repeatedly reinforced. As the climbing accident plays the role of a turning point in Hugh Herr's life and career, there are also a few moments that with slightest differences are constantly reappearing. Hugh Herr's research made with the purpose of defending Oscar Pistorius rights to participate in the Olympics is one of them. The Boston Marathon of 2013 is another, while in relation with that moment, the 2014's TED Talk where Adrianne Haslet-Davis is able to dance again after losing her leg in the marathon bombing is yet another.

His life path and professional career are also reflected by the media names casted upon him. He grew up from a 'mechanical boy' to a 'bionic man.' The digital ethnographic fieldwork also revealed other, less salient parts of his digital presence: the charcoal portrait drew by his daughter Alexandra in 2014, or an Instagram picture taken by a friend while visiting him at MIT, a picture where Herr is asked to show his prosthesis. A radio host who's starting his interview with Herr by addressing the regret of not being on TV, to show Hugh's bionic legs. There is also a comprehensive description on the organizational structure of BionX done by Bloomberg, a company founded by Herr, or a mountain climbing

trail named in his honour. All these elements might have been part of a digital ethnography on Hugh Herr, a technologically mediated built on web-links 'techno-biography.'

There are also a number of recurrent themes such as his career as a rock-climber, the development of bionic prosthesis or his advocacy for human enhancement. His self-proclaim mission for the eradication of disabilities. These are all parts of an ethnographic account for Hugh Herr's digital persona.

The heavily reliant on visualizations part of the thesis somehow moved away from the topics mentioned before. An emphasis was given to the digital tools used in the process of data collection. The focus was mainly informed by the variational method of a postphenomenological account, and it was made with the purpose of a reflective, hermeneutic relation of a researcher attending to the "screen technologies" (Ihde, 2003) – what is perceptually available through a digital mediation.

In here, the research questions are to be re-engaged.

How is the digital presence of a person acted upon? By whom (or what)?

And secondly,

Is the digital presence of a person transformed? And how?

The digital presence of a person is transformed by the Internet's technological mediations. And as it was shown the effects of these mediations are not only at an informational or communicational level. It is not solely a matter of content and how different web-sources choose to present him. There are multiple interactions that are contributing in the construction of a digital presence of a person. Hugh Herr's digital persona is acted upon by human and non-human interventions. The paths of interaction are not social, or only social, a digital link many a time acting as a connector between disparate or far apart users, audiences or communities.

With a theoretical perspective informed by a dramaturgical analysis of social interactions, and reflective of the human-technology relations of the digital world, the concept of a digital presence of a person was meant to bring a new perspective to the often used concept of a digital self. Many a time during the digital fieldwork, the experience was one similar with

the phenomenologists' elephant. The straight forward perception of an element, a link or a web-source somehow connected with Hugh Herr's digital presence, those perceptions were offering only a limited perspective of the subject. The list search and engagement with the data, and a network visualization of the same sources were two different perceptual experiences.

The network perspective gave the insight that a digital mediation has not only a transformative effect on a person's expressions of self. By the accretion of a body of data it can be talked not only about a digital self but of a full body made as a puzzle of continuous interactions. The digital presence of a person is an object. A hybrid object created at the intersection of multiple users' communities and acted upon by various other digital objects and tools.

> *"Humans are soft and malleable and we're not static; we change in time, we swell, we shrink. So how you attach the machine world to that is a really hard problem." – Hugh Herr*

This is Herr's problem formulation. The case study on his digital presence has started when the envisioned potential of a hybrid human construction that makes possible a sensorial experience through the use of prostheses. Delving in deeper into the subject, a neural connection between humans and machines remains a blueprint for future advancements of technology. And still, by a simple everyday use of digital technologies the growth of a digital presence, a full body of expressions that are acted upon by other people and technologies.

The virtual materiality of our self-expressions takes a final hermeneutical turn. The main function of a language is to enable people to communicate. It acts as a social and cultural bond that holds communities together. With a techno-anthropological twist of transforming the familiar experience into a strange one, language was also acting as a deterrent tool. Instead of building a fence, a simple 'no' was seen as equally effective. With the construction of a digital presence, a presence with its own materiality, the social and cultural interactions are about to be taken through or beyond these material and symbolic mediators of our existence.

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