

Soft telepresence as an incarnation of pain.

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Abstract

This is the abstract of the thesis.

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Introduction

The following introduction recounts the constitutive turn of events that led to the formation of this Master's Thesis. My underlying principle is, and has always been since I was discharged from my military duty, the use of cutting edge technology for social well-being. Throughout my evolution as a developer, I slowly drifted away from paths of algorithmic rationality and abstract, alienated coding and into questions of meaning and existence. Following my Bachelor's degree in Philosophy of mind and Neurobiology, I have sought ways to transcend my institutionalized role of a programmer and use the knowledge I have gained to challenge pressing issues of our society, and in particular, my own society in Israel.

The final phase transition occurred in the summer of 2012, when I landed on an opportunity to join a two-week conflict resolution workshop in Germany. The initiative, as started by an Israeli and a Palestinian who formed a relationship through mutual work, grouped young adults from both sides, carrying their hopes and doubts, to sit and talk together in one shared space. The participants in fact lived no more than a hundred kilometers away from each other; and yet they were so infinitely apart in practical terms that the most reasonable place for them to meet was in a separate continent, 4000 kilometers away. Ever since its formation, Israel has been divided between two nations, Jews and Palestinians. Due to the events of the 1967 "six day war", and until this very day, most of the Palestinians reside under Israeli military occupation. Access restrictions enforced by the Israeli government prohibit the crossing of populations between the nations and inhibit the Palestinians' mobility. A 700-kilometer-long concrete barrier surrounds the "Green line" that separates Israel from the West Bank – the area with the largest concentration of Palestinian population. While the crossing of Israelis to the other side is, at best, frowned upon, and at worst institutionalized and encouraged in the case of settlements; the Palestinians endure stricter restrictions, not only across the West Bank, but also within it. Multiple checkpoints divide different areas of the land and force the Palestinians to face military control on a daily basis. These restrictions compelled the Palestinians in our group to take a detour through Jordan in order to get to Germany, rather than taking the shortest path through Israel's airport.

Since the conflict between the nations is very much situated in the land of Israel/Palestine, meeting at a relatively neutral and distant location was also constructive. As noted by Nietzsche (2001, p. 134) : "Egoism is the perspectival law of feeling according to which what is closest appears large and heavy, while in the distance everything decreases in size and weight" . Albeit Germany plays significant role in the conflict with its great effect on the historical processes that lead to the formation of Israel as the home of the Jewish people, it was, nevertheless, easier for the parties to bridge the gaps without the unnerving presence of soldiers and the affect of this blood-soaked land. Up until then, the closest encounter I had had with a Palestinian was an occasional crossing with a nearby "Israeli-Arab". This controversial term can be accounted for an

attempt to sequester the national aspirations of the Palestinians that ended up under Israeli jurisdiction during the 1948 war for its independence (Peleg & Waxman, 2011, p. 26). To this day, the 1948 war marks both a national holiday for Israelis and a monumental catastrophe, or “al-Nakbah”, for Palestinians, due to hundreds of thousands of them being driven out from their homes and becoming refugees in the neighboring countries. As for 1967 Palestinians that found themselves out of Israel’s borders after its formation – they are currently living under either siege in Gaza or under military occupation in the West Bank. Naturally, my encounter with them has been strictly imaginative or digital – this was about to be my first physical encounter with the *Other*.

Growing up as part of a middle-class Israeli family, in Tel-Aviv of the 90s, I was raised upon liberal and humanistic values, all while living in the occasional war zone of missiles and suicide bombings. I was constantly immersed in media spectacles, interchanging from the hopeful discourse of peace, to the despondence of carnage of war. As a result, I developed a self-contradictory and somewhat post traumatic view of the Palestinians: They represented, on one hand, a source of danger, and on the other, a marginalized and abused population. Their behavior was both condemned and justified, they were both terrorists and freedom fighters; they were to be reconciled with, but could not be fully trusted.

I remember the anticipation I felt as we arrived, in pouring rain, to our host institution “Jugendakademie Walberberg”, a youth center and hostel in a remote village close to Cologne. The Palestinians were already waiting for us at the rendezvous point, waving flags and demonstrating unity. Upon meeting the embodied strangers face to face, I experienced what could be described not only as an emotional turmoil, but also to some extent a spiritual event. A vertical motion in which transcendental forces and ideas sedimented within a body, only so that they can once more coil up within themselves, and transcend along their historical contingency to emerge a true found *Logos* – the actual voice and ideas of the corporeal stranger. The *Other* was no longer a fetishized stranger, but a verified existence. Simone Weil enunciates in her collection of aphorisms - *Gravity and Grace*: “Man has to perform an act of incarnation, for he is dis-embodied (désincarné) by his imagination. What comes to us from Satan is our imagination” (Weil, 2002, p. 54). I can validate Weil’s intuition: After this act of incarnation, I felt more capable of practicing conflict resolution. I felt grounded, open to difficult discussions and was able to obtain a sense of release from pain that I was enduring. It was as if the corporeal presence of the Palestinian in front of me had untangled and mended short-circuits that existed in my mind, and from then on, everything felt more natural.

At the end of the workshop in Germany, we were asked to think on how we can utilize what we had gained toward the upcoming future. At that moment, I felt a great sense of duty – I was to use my software engineering skills to bring about this event that I experienced to a massive scale, to enable conflict resolution for the masses until a critical point of the nonlinear system that is society is reached, and the democratic process is shifted toward peace-making. I did not consider at first that corporeality as such, is a crucial ingredient for

this process. I simply aimed toward a free and expressive virtual encounter between conflicted strangers; whether through games, music, chatting or other forms of online communication. Now, however, I would like to contend that the virtual reality is insufficient for a true determination of history, and for a true transformation of the individual. Through the Merleau-Ponty's phenomenology and post-colonial theories of Sarah Ahmed, I would argue that an embodiment is necessary for inter-subjective dialectics that determine the style of our social existence. The physical flesh of our subjectivity in time and space, and our physical interaction with the other, demarcates our being in this world and form our social identity. This realization led me to pursue the technological solution for an efficient, mobile and expressive *re-embodiment*, a *techno-flesh*; one that can cross borders, separation barriers and facilitate events of incarnation when a physical encounter is not possible. I found the answer in the form of Soft Robotic Telepresence, a modern-day incarnation, an Avatar for pain relief.

In this thesis, once I establish the theorem regarding the importance of embodiment in social transformation, I ask the question of whether a remote re-embodiment, a techno-flesh, can exhibit the same power for social dialectics as a direct encounter, and if not, how can we bring it as close as possible to the real thing. I will outline my journey for constructing a telepresence soft robot that can serve as a mediator between subjects in conflict, knowing that I will first and foremost test it in the land of Israel and Palestine; but hoping that it can be applicable to any situation of conflict and other situations of gaps in society. The implementation is put to preliminary testing and is evaluated for future work. I invite the reader to join me on this journey of transcendent hope and corporeal suffering.

Stranger Fetishism and the Circulation of Emotions

Let us investigate further the conditions that have led to this event of incarnation. Prior to the encounter, I had nothing but an image of a Palestinian, the so called "Other". An image that was fed by media, by conversations, by my own internal processes, none of which were originated directly by an existing Palestinian in a co-inhabited space. I have developed a milieu of emotions toward that image, which were by definition generalized and prejudiced, since they were oriented toward an abstract entity, a generalized identity. Moreover, these emotions tended to be posited on more extreme ends of the emotional scale, either being strongly negative or strongly positive.

This phenomenon is symptomatic to what is described by Sara Ahmed as "Stranger Fetishism". In her book *Strange encounters* she defines it as "a fetishism of figures: it invests the figure of the stranger with a life of its own insofar as it cuts 'the stranger' off from the histories of its determination." (Ahmed, 2000, p. 5). The epistemological gap of the stranger in its corporeality, leaves an opening for an over-representation; a figure of our imagination to which we

assign deep emotional properties. Ahmed borrows the term “Fetishism”, both from a Marxist perspective of “Commodity Fetishism” and from a Freudian perspective of a phantasmic substitution.

We begin with a further examination of the Marxist perspective. In *Capital: Vol I* Marx explains his notion of commodity fetishism (Marx, 2015, p. 47). The fetishism lies in the Bourgeois’s inability to discriminate between the commodity item’s inherent and physical history - such as labor time, materiality and use, and its abstract value that is determined by the social relations of exchange: “A commodity is therefore a mysterious thing, simply because in it the social character of men’s labour appears to them as an objective character stamped upon the product of that labour” (Marx, 2015, p. 47). When we assign a monetary value to a certain item, we in fact conceal the fact that this value is a result of a social and historical process, and it appears as if the value is an objective property of that item. Ahmed equates this process to the fetishization of the figure of the stranger. So in this case, the ‘commodity object’ that is tied to a material basis would be a corporeal person of some social identity, while the value that we assign to it is the abstract figure of the stranger. Much in the same way, we are prone to assign our prejudices, that are a product of social exchange, as actual properties of the person.

The Marxist analogy becomes even more interesting when we examine the economical circulation of emotions that are associated with the stranger. In her later book, *Cultural Politics of Emotion*, Ahmed identifies a relation between the circulation of abstract value during commerce and the circulation of affect when discussing strangers in society (Ahmed, 2014, p. 45). In his discussion about the general formula of capital (Marx, 2015, p. 104), Marx explains the importance of the transition from the more simple form of trade: Commodity-Money-Commodity (C-M-C), to the more modern form of Money-Commodity-Money (M-C-M). In the former, more simple form, money is used only as an abstract mediator between two objects that are grounded in their materiality and use-value. For example one would sell their produced crop of corn to obtain money, which would then be used to buy cloths. However, in the latter form of M-C-M, the accumulation of abstract value is the end goal of the transaction, and since the only use of the money is to further accrue it, the process is endless. Thus, value, or circulated capital “suddenly presents itself as an independent substance, endowed with a motion of its own, passing through a life-substance of its own, in which money and commodities are mere forms forms which it assumes and casts off in turn” (Marx, 2015, p. 107). The same effect, Ahmed suggests, occurs when the imaginative figure of the stranger, and its associated emotions are circulated throughout society. Ahmed provides as an example the discourse surrounding asylum seekers in the UK. Leaders of the conservative party have created a frightening image of the asylum seeker, one that is not only “flooding” and “swamping” the nation, but is also disingenuous in their intention; faking the need for asylum in order to be able to reside in the country. This discourse is passed around, from speech to speech, from media report to office conversations, all while breathing life into the imaginative figure and accumulating affect, intensifying the associated negative emotions. The

reason for this intensification is exactly the one that enables the infinite accumulation of capital, its disassociation with anything physical that can set its bounds: “The impossibility of reducing hate to a particular body allows hate to circulate in an economic sense, working to differentiate some others from other others, a differentiation that is never ‘over’, as it awaits others who have not yet arrived. Such a discourse of ‘waiting for the bogus’ is what justifies the repetition of violence against the bodies of others in the name of protecting the nation” (Ahmed, 2014, p. 47). Ahmed notes that her analogy to Marx is limited, since her “argument does not respect the important Marxian distinction between use value and exchange value” (Ahmed, 2014, p. 45)”, yet it is imperative to recognize the sort of metaphysical similarity between the two notions of circulation. In both, a lack of access to the worldly *flesh* of a thing, whether it be a stranger or a commodity, allows the creation of an abstract image, the circulation and amplification of that image in society, and the projection of strong emotions toward that image.

This projection

social relations such as political identity and power structures are embedded into an imaginative figure object. From a Freudian perspective, our personal fears, lacks and desires are projected onto it. This combination creates a powerful and encompassing figure of the stranger, which is not only socially stereotypical, but also emotionally charged.

Ahmed delves deeper into the emotions that are associated with the fetishized stranger. Her focus is on negative emotions, such as fear and hate that are associated for example with asylum seekers. She notes how “the figure of the bogus asylum seeker evokes the figure of the ‘bogey man’, that stalks the nation and haunts its capacity to secure its borders” (Ahmed, 2014, p. 14). She posits, however, that hatred is in fact a form of intimacy. Citing Gordon W. Allport’s classic account *The Nature of Prejudice*, in which Allport asserts that “[a] symbiosis and a loving relation always precede hate. There can, in fact, be no hatred until there has been long-continued frustration and disappointment” (1954). I would argue that whether it is love or hate, a lack of knowing or an impossibility of knowing a subject that is meaningful to our existence, opens up a window for a circulation of intense emotions. For example, we may fantasize about imaginative scenarios involving a potential romantic partner that we have a difficulty of encountering in reality, or we may dread a frightful refugee that we have not been able to meet and converse with. This is supported by the fact that hate and love share overlapping neuropsychological mechanisms (Zeki & Romaya, 2008). Our subjectivity is prone to project its own fears and desires on the imagined figure.

Unsorted

The field of robotics has moved far beyond the realm of metals gears, clamping arms, roombas and staggering humanoids. We are frequently seeing new materials for robots: from origami folded polyester sheets (Li, Vogt, Rus, & Wood,

2017) to edible gelatin (Shintake, Sonar, Piskarev, Paik, & Floreano, 2017), and also new forms such as abstractly shaped personal robots (MJI, 2015). In this thesis work, I will outline the theoretical and conceptual framework, as well as the technological design and implementation of a Soft Robotic Telepresence – that is, a pneumatically actuated, silicone based soft robot, whose form is inspired by both cultural tropes and natural elements and whose aim is to facilitate the incarnation of pain.

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