

Statement of Purpose

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"All these shapes are talking to us without words," my aunt, a photographer, used to say to me whenever she took me out for a photographic journey. Fascinated by aesthetic shapes and spaces, I always dreamed of becoming a creator such as an architect or an artist, until I came across a book written by Nicholas Negroponte. The "New World," introduced in the book, "Being Digital," shifted my interest from tangible shapes to shapeless digital space. My strong desire to witness the very moment that atoms turn to bits led me to study Electronic Engineering at the University of Tokyo.

During my first year as an undergraduate, I was deeply absorbed in understanding the core of this "New World," studying theories of electronics, circuits, and information. It was during this time that I met up with my aunt again, as she prepared for her exhibition at the Metropolitan Museum. As I gazed at her photos, she repeated what she had first said to me 10 years before about, "talking without words, but with shapes." In that moment, I realized that this had become the essence of my own philosophy, a thought that resonated in my subconscious and led me to dream of a future in which digital environments could be accessed as fluently as our physical surroundings.

My belief has been that the most fluent interaction is that which takes place between art works or natural objects and the people who are staring at them. When appreciating works of art, people do not have to focus intentionally, because the work is perceived as visual shapes, through intuition. I took on the challenge of realizing this concept by building the software, "Stock Ecology." By rendering the situation of the stock market as a forest that changed dynamically with the weather and the seasons, its aim was to enable people to understand the complex situation of the stock market without having to be tremendously attentive.

In addition to expressing information with an artistic metaphor, I am interested in adapting a sense of artistic creation to the manipulation of digital information. Artists feel immersed in their work because the stimulation they give to their creations produces a spontaneous change in their shape. This change can be felt by the versatile senses they feel with their hands, which provide fluent interaction between their creations and themselves. “Tangible Pixels,” my senior thesis at the University of Tokyo addressed the challenge of allowing people to create their own digital objects. Pixels, the fundamental components of graphical representation, were given a physical form by piling up blocks, each of which functioned as a pixel. This work will be submitted to ACM SIGGRAPH 2009’s Emerging Technologies this coming February, with myself as the first author. In this regard, I have been deeply inspired by the splendid works created by Professor Hiroshi Ishii’s Tangible Media Group at MIT Media Lab, which also deal with providing tangible shapes to digital information. I believe this great challenge, which I would like to join, will finally give birth to a new language of communication between human and digital environments.

Another significant step to realizing fluent human-digital environments interaction, which would consume less attention, would be to augment the physical environments of our everyday lives into digital spaces. Looking for chance to create technology that would give mobile devices awareness of physical spaces and social context, I joined the Interaction Laboratory of Sony CSL (Computer Science Laboratories). Under the guidance of Professor Jun Rekimoto, I have been involved in research dedicated to creating intelligent software for mobile devices that would enable these devices to read the social context of physical environments- not by reading any meta-information, but through the visual images of physical objects themselves. This internship experience confirmed my intense interest in human-digital environment interaction.

Even though what I gained through research at Sony CSL was invaluable, I realized the limitations of such a system; this intelligent system would still not be capable of enabling fluent interaction between users and their surroundings. What I had been envisioning was an interface system based on the concept that the human mind is something that passively perceives stimulation from the outside. Instead, through further research, I would like to approach building an interface system based on the ecological cognitive model, which assumes the human mind is

merely one of the components dynamically interacting with other elements in the surrounding environment. This can be realized by giving awareness of both social and spatial contexts to our surrounding objects instead of giving omnipotent centered intelligence to a certain single system. Splendid works done by Professor Pattie Maes' Fluid Interface group such as "Invisible Media" offer great examples of realizing fluent interaction by augmenting our physical environments and making them responsive to us. The Design Ecology group led by Professor David Small is another group doing work that matches my vision of designing technology that is aware of dynamically changing environments.

In exploring these issues, I would like to design interactions between people and digital environments that are more fluent and delightful by providing an intuitive and physical shape to digital information, and augmenting physical objects to digital environments. I am especially interested in representing complex information as a visual and physical shape that people can easily access without being attentive. This challenge, which effectively seeks to smoothly integrate two worlds, promises to enable better collaboration between humans and machines, as well as between humans themselves. To achieve this goal, I need to expand not only my technological and analysis skills and knowledge, but also I need to gain experience creating concepts that reflect these issues. MIT Media Lab's approach to the development of technology ideally suits this purpose, given its emphasis on research that brings cognitive issues to developing technology, and provides shape to those ideas through extreme creativity. I believe these new technologies will enrich our society, by offering more dynamic and innovative means of defining the myriad aspects of our social relationships and learning processes.

Graduating from the University of Tokyo with the honor of being one of the recipients of the 7th Samsung Scholarship in Korea, which guarantees support for two years of graduate study, I am pursuing the Master of Sciences towards a Ph.D. in the Media Arts and Sciences Program at MIT. MIT Media Lab offers a unique environment where I would be able to realize my vision of creating new interactions between human and digital environments by taking a true interdisciplinary approach. The manner in which social and philosophical inquiries are reflected in technology is what makes the Media Lab unique. Such an environment, which allows for a genuine collaboration of artists and engineers willing to create the new paradigm, will inspire

and draw out the best of my academic and creative potential. Admission to MIT Media Lab would be a privilege, which I would hope to honor through hard work and distinguishing myself as an innovative creator of the future.

Portfolio:

<http://www.hc.ic.i.u-tokyo.ac.jp/~jhlee/jinha/home.shtml>