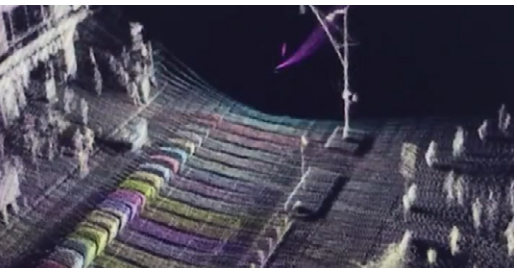
Columbia University Graduate School of Architecture, Planning & Preservation
Spring 2014 Advanced Studio IV
Toru Hasegawa & Mark Collins

Brain Hacking IV: Future Fulfillment

Instant Gratification in an Accelerating Culture

Steve Jobs said that “the boundary between soft and hard is really grey. Software is something that didn’t get implemented into the hardware.” The same is true for cities, where tangible structures embody the pulsating rhythms of urban life. New infrastructures are emerging to serve this 21st century city. Our studio will examine one such reflexivity between the physical and the digital by proposing a fulfillment and shopping center for the city of Tokyo. Typically set on the perimeter of population centers, increasing consumer demand for fast delivery and infinite choice, along with the mathematical logic of density, is drawing these facilities into the city cores. Set in the electronics district of Akihabara and the accelerating culture of our on-demand world, the fulfillment center will not only mirror the scale and texture of our digital shopping, but will capitalize on new potentials made possible through its urban context. By urbanizing and opening this engineering facility, each project will come to terms with material consumption patterns in an exponentially accelerating society.

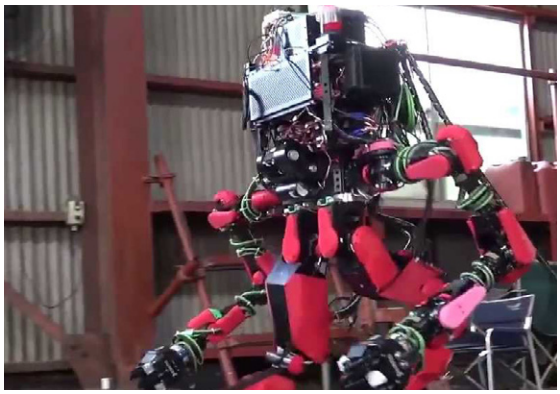


Amazon Fulfillment Center, from the Atlantic. Amazon.com drone and sensing visualization.

Our studio will travel to Tokyo Japan as part of the William Kinne fellowship. As part of this travel we will visit research labs developing the next generation of communications and sensing technologies. We directly engage with roboticists, biomedical engineers and neuroscientists to gain unique insights into rapid technological development. The Toyota headquarters and manufacturing center will allow us to see the rich interfacing of human and non-human actors in the fulfillment process first hand. Another integral part of our studio travel is to witness and examine east/west differences in technology, consumption and fulfillment through site visits, events and discussions.

Our primary context for both the fulfillment center and the city at large is rapid technological acceleration. Gauging the exponential growth of technology can be incredibly unintuitive. Moore's Law tells us that computing doubles every two years. A tangible result of this climbing curve is that you now carry around the equivalent of a super-computer in your pocket. We like to think of how Moore's Law is playing out in cities and other tangible places. The Brain Hacking series of studios studies the culture of acceleration through direct connection to research-based technology projects and practitioners. As these technologies reshape the human body and human experience, they also affect cities and the visual/aural/kinesthetic environment in general. We have focused the studio hive mind on program types that bring these changes into sharp focus, bridging the divide between the digital and the physical, from housing for the quantified self to self-organizing hospitals.

The studio uses programming alongside conventional modeling and rendering tools. This is a core issue for us: *programming literacy*. Why do architects need to learn how to code? Data visualization will be a first step in understanding how computing can be harnessed to visualize the massive scale of consumption. Computing will be a collaborator in the process to imagine responsive environments that can re-organize and adapt. Computing can interface your design logic with the exponentially increasing smart matter its embedded within. In Japan, even street pavers communicate. Lastly, computing is a powerful way to understand ourselves. We want to externalize as much of our design thinking into these codes as possible to find what is inextricably human. We approach coding from the ground up, with specially designed workshops and tools for first time programmers.



The SCHAFT DARPA prize-winning robot, Hiroshi Ishiguro and his Gemenoid and Kiva Systems fulfillment robots.

Studio Collaborators and Presenters

We will travel to Japan to connect directly with researchers in technology and manufacturing as well as to experience unique Human Computer Interaction projects in Japan. Immersion in Japan's technology culture will give us a new perspective in which to culturally assess our methods and intentions. The planned lectures and site visits are in direct support of the semester's studio project of an urban fulfillment and shopping center.

Studio-X Tokyo Event Coordinators

Hirose Daisuke, Studio X Tokyo (GSAPP MSAAD, '02)

Keisuke Toyoda, Noiz Architects(GSAPP MSAAD, '02)

Planned Site Visits

Studio-X Tokyo

Toyota Factory and Headquarters, Toyota City Japan

Advanced Telecommunications Research Institute, Kansai Science City Japan

Ubiquitous Networking Laboratory, Tokyo Japan

SCHAFT Inc Robotics, Tokyo Japan

Akihabara Electronics District, Tokyo Japan

Arakawa + Gins Japan Office and Reversible Destiny Lofts, Mitaka Japan

Planned Presenters

Hiroshi Ishiguro (Japan ATR)

Ken Sakamura (Ubiquitous Networking Laboratory)

Jun Yamada (YRP Lab Director)

Junichi Urata (Tokyo University, Department of Mechano-Informatics)

Momoyo Homma (Arakawa + Gins Tokyo Office Director)

Tomy Kamada (TomyK Ltd)

Kinne Travel to Japan and
Site Visits to the ATR