

Masaki Ito

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Research Interests

Ubiquitous computing, Geographic Information Systems (GIS), human-computer interaction, social acceptance of technology, system software.

Education

Keio University, Japan

2009 Ph.D. in Media and Governance (Area of Study: Computer Engineering)

- Dissertation Title: *A Study of End-user Mapping for Building Interactive Spatial Services*
- Adviser: Professor Hideyuki Tokuda

2004 Master's in Media and Governance (Area of Study: Computer Engineering)

- Thesis Title: *An Interactive Action History Mining Tool for a Context Aware Application*
- Adviser: Professor Hideyuki Tokuda

2002 B.A. in Environmental Information (Area of Study: Computer Engineering)

- Thesis Title: *A Dynamic Media Data Path Generation Structure with A/V Device Cooperation*
- Adviser: Professor Hideyuki Tokuda

Employment

2008-Present Research Associate, Graduate School of Media and Governance, Keio University (Kanagawa, Japan)

- Planning and management of research projects.
- Supervision of graduate and undergraduate students in the lab.

2007-08 Programmer, Orkney Inc. (Kanagawa, Japan)

- Renewal of server and software of a web-map service for GIS professionals.
- Creating an installable package of open-source GIS software for retailing.

Professional Experience

Engaged in the following national projects as a research associate or graduate student of Tokuda Laboratory at Keio University.

2008-Present Researcher in Dynamic Network Project

Funded by National Institute of Information and Communications Technology (NICT), Japan.

In order to make home-networks more usable, I organized a team of graduate students and developed a unique controller application on iPhone from a user-centric viewpoint, which has long been ignored among network researchers. By representing the status of devices that are interacting with each other simply as input/output of the service on the controller and combining multiple direct pointing methods suitable to different situations, we realized a user's intuitive selection and control of devices. In other words, an IP address, the complex interaction among devices on the network and other technical knowledge was not required to control devices. Our early fruits were demonstrated in Pervasive 2009 and Ubicomp 2009, and the latest results are being submitted to conferences in the ubicomp area.

My primary role:

- Progress management of the project in Keio University.
- Supervision and instruction to graduate students in three research subjects: networking, context-awareness, and human-computer interaction.
- Researcher in both context-awareness and human-computer interaction teams.
- Annual research planning, budget-making and writing of the research report.

2007-08 Researcher in Ubila Project

Funded by Ministry of Internal Affairs and Communications, Japan, joint research with KDDI, KDDI R&D Laboratories, NEC, Fujitsu, The University of Tokyo, and Kyushu Institute of Technology.

The Ubila project aimed to develop broad areas of ubiquitous computing technologies with major companies and universities in Japan. My colleagues and I integrated different types of ubicomp technologies and developed a future shopping system which captures micro-level behavior of consumers in retail stores and provides useful information to the consumer and to the stores. We deployed the system in a cell-phone store and an action figure store in Akihabara, Tokyo, where a consumer could see detailed information and related blogs on the display embedded in the shelf just by taking goods from the shelf.

My primary role:

- Researcher in deployment and field experiments of ubicomp technologies.

2004-07 Research Assistant in The 21st Century COE Program on Next Generation Media and Intelligent Social Infrastructure

Funded by Ministry of Education, Culture, Sports, Science and Technology, Japan.

The 21st Century COE Program aimed to conduct world-leading novel research projects by funding Japan's most competent graduate school research groups. In the COE project at Keio University, I collaborated with researchers in landscape planning to improve the process of landscape planning with ubicomp technologies. Focusing on environmental monitoring, which could stimulate landscape planning but had long been conducted exclusively by experts, we selected a cheap and small wireless sensor network device for the monitoring and developed an environmental monitoring software system called Airy Notes, which permitted easy installation of sensors and real-time visualization and sharing of data among non-expert users. The field experiment was conducted in Shinjuku Gyoen Garden, Tokyo, which our co-researchers were planning to renovate. Our system demonstrated the purpose of the renovation to visitors by showing real-time microclimate captured by 160 densely placed sensors throughout the garden.

My primary role:

- Planning and execution of collaborative research project with Ph.D students in other research fields.
- Development of environmental monitoring system for landscape planning.
- Established collaborative research method with mutual understanding of each research field.

2003-06 Researcher in uCore Project

Funded by New Energy and Industrial Technology Development Organization (NEDO), Japan, joint research with Sharp Corporation and National Institute of Advanced Industrial Science and Technology (AIST).

The uCore Project aimed to develop a common hardware and software platform for ubiquitous computing devices such as sensor network nodes, personal mobile devices and home electronic devices. I focused on the personal activity history, which would be captured by various devices such as a GPS receiver, environmental sensors and cameras in the future ubiquitous computing environment. I developed an application with which a user can analyze and visualize a vast amount of his/her activity history in order to explore, recall and share his/her past activities. The system has a visual programming interface based on the data-flow model, where a user can interactively change the manner of analysis by mouse operation to show his/her past activities. I demonstrated the system at Pervasive 2005 and other international conferences with my own data. Even after completion of the project, I still continue to record my movement with a GPS receiver (6+ years).

My primary role:

- Development of visual analyzer of activity history (mPath Framework).
- Budget making and writing of annual report.

Awards

- “Highly Commended Paper” Award (mPATH: An Interactive Visualization Framework for Behavior History), AINA2005, March 2005.
- “Keio University Taikichiro Mori Memorial Scholarship fund,” 2003–2007.

Publications (Articles in Refereed Journals)

- **Masaki Ito**, Yukiko Katagiri, Mikiko Ishikawa, and Hideyuki Tokuda, “Airy Notes: Environmental Monitoring by Wireless Sensor Network System for Landscape Planning,” *Journal of Information Processing Society of Japan*, Vol.49, No.1, pp 69–82, Jan. 2008.
- **Masaki Ito**, Jin Nakazawa, and Hideyuki Tokuda, “mPATH: A Software Framework for Interactive Visualization of Behavior History,” *Journal of Mobile Multimedia*, Vol.1. No.3, pp 255–269, 2005.

Publications (International Conferences and Workshops, Selected)

- **Masaki Ito**, Yukiko Katagiri, Mikiko Ishikawa, and Hideyuki Tokuda, "Airy Notes Project: Creating Landscape Planning Method for the Ubicomp World," International Workshop on Hybrid Design Practice: Situating Ubicomp's Interdisciplinarity, In Conjunction with Ubicomp 2009, pp. 89-90, September 2009.
- Katsuya Hashizume, Kazuhiro Imura, Kyohei Kawada, Naoya Namatame, Tomotaka Ito, **Masaki Ito**, Jin Nakazawa, Kazunori Takashio, and Hideyuki Tokuda, "Swing, Snap and Stamp It! : Device Interaction with Fun," Ubicomp 2009 Videos, pp. 140-143, October 2009.
- Soko Aoki, **Masaki Ito**, Junichi Yura, Jin Nakazawa, Kazunori Takashio and Hideyuki Tokuda "u-Photo Mobile: Interacting with Smart Environments via Clickable Photos on Mobile Phones," The 5th International Conference on Intelligent Environments (IE09), July 2009.
- Tomotaka Ito, Katsuya Hashizume, Kyohei Kawada, Naoki Nakagawa, Naoya Namatame, **Masaki Ito**, Jin Nakazawa, Kazunori Takashio, and Hideyuki Tokuda: "Snappy: A Snap-based Human Interaction for Multiple Device Collaboration," Pervasive 2009 Demonstrations, May 2009.
- **Masaki Ito**, Yukiko Katagiri, Mikiko Ishikawa, and Hideyuki Tokuda, "Airy Notes: An Experiment of Environmental Monitoring for Improving Urban Environment Using Tiny Wireless Sensor Modules," Sixth Annual IEEE International Conference on Pervasive Computing and Communications (PerCom 2008) Demonstration, March 2008.
- **Masaki Ito**, Yukiko Katagiri, Mikiko Ishikawa, and Hideyuki Tokuda, "Airy Notes: An Experiment of Microclimate Monitoring in Shinjuku Gyoen Garden," Fourth International Conference on Networked Sensing Systems (INSS 2007), pp.260–266, June 2007.
- **Masaki Ito**, Jin Nakazawa, and Hideyuki Tokuda, "Software Architecture for Map-based Services in Ubiquitous Computing Environment," MOBILE MAPS 2005,

in combination with MobileHCI 2005, September 2005.

- **Masaki Ito**, Yuu Furuichi, Jin Nakazawa, and Hideyuki Tokuda, “mPATH View: An Interactive Behavior History Viewer for Enhancing Communication,” Adjunct Proceedings of the Third International Conference on Pervasive Computing (Pervasive 2005 Demonstrations), pp.93–96, May 2005.
- **Masaki Ito**, Jin Nakazawa, and Hideyuki Tokuda, "mPATH: An Interactive Visualization Framework for Behavior History," The IEEE 19th International Conference on Advanced Information Networking and Applications (AINA2005), pp.247–252, March 2005.
- **Masaki Ito**, Jin Nakazawa, and Hideyuki Tokuda, “A Framework for Personalizing Action History Viewer,” Pervasive 2004 Workshop on Memory and Sharing of Experiences, pp.87-94, April 2004.
- **Masaki Ito**, Akiko Iwaya, Masato Saito, Kenichi Nakanishi, Kenta Matsumiya, Jin Nakazawa, Nobuhiko Nishio, Kazunori Takashio, and Hideyuki Tokuda, “Smart Furniture: Improvising Ubiquitous Hot-spot Environment,” 3rd International Workshop on Smart Appliances and Wearable Computing (IWSAWC2003), pp.248-253, May 2003.

Technical Skills

- Programming: Java, C, C++, Objective-C, Ruby, Perl, Javascript
- Middleware: PostgreSQL(PostGIS), Ruby on Rails, Java Servlet
- Presentation: HTML, CSS, Photoshop, Illustrator, Microsoft Office, ArcGIS
- OS: Windows, MacOS X, Linux, FreeBSD
- Object Oriented design and programming

Language Skills

- Japanese: Native
- English: Fluent