

# Susumu Saito

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## Education

### Waseda University, Tokyo, Japan

Ph.D. in Computer Science and Engineering  
Graduate Program for Embodiment Informatics

Apr 2017-

### Carnegie Mellon University, Pittsburgh, PA

Visiting Student (Short-Term Scholar)

Human-Computer Interaction Institute, advised by Dr. Jeffrey P. Bigham

**Research Project:** *Striving to Earn More: A Survey of Work Strategies and Tool Use Among Crowd Workers*

Sep 2017-Mar 2018

### Waseda University, Tokyo, Japan

M.S. in Computer Science and Engineering  
Graduate Program for Embodiment Informatics

Apr 2015-Mar 2017

**Thesis Title:** *Crowd-Powered Condition Monitoring System Framework Enabling Early Stage Deployment*

### University of California, Davis, CA

International English and Professional Programs (completed)

Aug 2015-Sep 2015

### Waseda University, Tokyo, Japan

B.E. in Computer Science and Engineering

**Thesis Title:** *Video Recommendation System for Effectively Complementing Learners' Knowledge of Online Lecture*

Apr 2011-Mar 2015

### Waseda University Senior High School, Tokyo, Japan

Apr 2008-Mar 2011

### Oliver Wendell Holmes Junior High School, Davis, CA

Sep 2004-Jun 2006

## Research Projects

**Interests:** Crowdsourcing, pattern recognition/machine learning, software engineering

### 1. Real-Time Computing-Based Microtask Scheduling

Designing a crowdsourcing framework that enables requesters to control response time of microtasks. This ongoing research project is expected to be for my Ph.D. thesis, which involves techniques that 1) predicts working time of microtasks from machine-learning approach; 2) controls working time of microtasks by motivating workers with dynamic rewarding scheme and UI design; and 3) schedules microtasks by using analogy of real-time system scheduling algorithms.

### 2. Ever-evolving AI framework

Designing and developing an crowd-powered AI framework, which assists AI algorithms that lacks training data and thus are poor in its performance, to be deployed feasibly with support by crowdsourcing. In the workflow, crowdsourcing takes AI's low-confidence pattern recognition results as input and verifies them in real-time, so that 1) the final system output is consistently accurate, and 2) AI algorithm performance continuously gets improved by the new data with annotations. The framework is now deployed in a real-world in collaboration with cow farmers in Kagoshima prefecture, Japan, as a camera-based cattle surveillance system.

## Publication

### International Conferences:

- [1] Toni Kaplan\*, **Susumu Saito**\*, Kotaro Hara, and Jeffrey P. Bigham. “*Striving to Earn More: A Survey of Work Strategies and Tool Use Among Crowd Workers.*”, AAAI HCOMP2018, Zurich, Switzerland, 2018. (\* equal contribution)
- [2] Kazuya Ueki, Kotaro Kikuchi, **Susumu Saito**, and Tetsunori Kobayashi. “*Waseda at TRECVID 2016: Ad-hoc Video Search.*” TRECVID 2016, NIST, 2016.
- [3] Kazuya Ueki, Kotaro Kikuchi, **Susumu Saito**, and Tetsunori Kobayashi. “*Waseda at TRECVID 2016: Fully-automatic Ad-hoc Video Search.*” TRECVID 2016, NIST, 2016.
- [4] **Susumu Saito**, Teppei Nakano, Makoto Akabane, and Tetsunori Kobayashi. “*Evaluation of Collaborative Video Surveillance Platform: Prototype Development of Abandoned Object Detection.*” ACM ICDS2016, Paris, France, 2016.
- [5] **Susumu Saito**, Teppei Nakano, and Tetsunori Kobayashi. “*Towards a framework for collaborative video surveillance system using crowdsourcing.*” ACM CSCW2016, San Francisco, CA, 2016.

### Domestic Conferences:

- [6] Okimoto Yusuke, Kazuma Sugawara, **Susumu Saito**, Teppei Nakano, Makoto Akabane, Tetsunori Kobayashi, and Tetsuji Ogawa. “*Detection of Cattle States Relevant to Calving from Video.*” JSAI2018, Kagoshima, Japan, 2018.
- [7] **Susumu Saito**, Teppei Nakano, and Tetsunori Kobayashi. “*Prototype Design for Collaborative Video Surveillance System using Crowdsourcing.*” Proceedings of the 2016 IEICE General Conference, pp.252-252, 2016.
- [8] **Susumu Saito**, Teppei Nakano, and Tetsunori Kobayashi. “*A Collaborative Video Surveillance System using Crowdsourcing.*” Proceedings of the 78th National Convention of IPSJ, 2016.
- [9] **Susumu Saito** and Tetsunori Kobayashi. “*Video Recommendation System for Effectively Complementing Learners' Knowledge of Online Lecture.*” Transactions on Computer and Education, Information Processing Society of Japan, 2016.

## Patent

- [10] Japanese Unexamined Patent Application Publication No. 2016-165131, 2016-08-25.

## Fellowship

- **Graduate Program for Embodiment Informatics** (Apr 2015-Mar 2019)
- **JSPS Researcher Fellowship (DC2)** (Apr 2019-Mar 2021)

## Conference Volunteering

- **CHI 2018** Student Volunteer
- **CHI 2017** Student Volunteer
- **SIGGRAPH Asia 2016** Student Volunteer
- **SIGGRAPH Asia 2015** Student Volunteer

## Work Experience

### General Electric, Tokyo, Japan

Feb 2016–May 2016

Global Research Center

**Jobs:** *Market research on additive manufacturing, IoT platform development.*

Investigated on the market of additive manufacturing (3D printing) of ceramics and metals, for one of GE’s future business plans and strategies. In parallel, developed video surveillance system prototype built on Predix, the industrial IoT platform of powered by GE. On this prototype, automated detection and alerting function based on the idea of my crowd-powered condition monitoring system has been implemented by a simple face recognition algorithm followed by crowdsourcing verification. This prototype suggested a new way to divert the platform not only into industrial usage but also into in-home and in-office usage.

## **Skills**

Microtask Crowdsourcing Design / Pattern Recognition / System Design / Design Pattern Programming / Web Programming / Computer-Aided Design

**Programming languages:** Python (Django, Flask, Pandas, Scikit-learn, Jupyter Notebook), JavaScript (jQuery, Node.js, Meteor), PHP (CakePHP), HTML5/CSS, Matlab, C++, Java, SQL

## **Languages**

**Japanese:** Native

**English:** Professional (TOEIC: 945)