

CURRICULUM VITAE

MASATARO ASAI

Doctoral Student

Department of General Systems Studies

Graduate School of Arts and Sciences, University of Tokyo

Gender: Male. Date of birth: March 28th, 1990. Present Citizenship: Japanese.
Address: Saginuma-Viola 201 6-23-18 Arima Miyamae-ku Kawasaki Kanagawa, Japan.
Cell: +81-50-7576-3690. Email: guicho2.71828@gmail.com Skype: guicho2.71828
Website: <http://guicho271828.github.io/>

EDUCATION

- 04/2009–03/2013 Received B.Eng in Traffic Simulation at University of Tokyo, Japan. Specialization: Traffic Simulation, Multi-agent Model, Spatial Search. Thesis: *Distributed Cooperative Agents in Microscopic Traffic Simulation using St-RRT*; Advisor: S. Yoshimura, Professor. H. Fujii, Research Assistant Professor.
- 04/2013–03/2015 M.A. in Artificial Intelligence at University of Tokyo, Japan. Specialization: Artificial Intelligence, Heuristic Search, Planning, Scheduling, Optimization Thesis: *Automated Cyclic Planning for Large Scale planning problems*; Advisor: A. Fukunaga, Associate Professor
- 04/2015–present Doctoral study in Artificial Intelligence at University of Tokyo, Japan. Advisor: A. Fukunaga, Associate Professor

PUBLICATIONS

- [1] Masataro Asai and Alex Fukunaga. Applying Problem Decomposition to Extremely Large Planning Domains. In *Proceedings of the ICAPS Workshop on Knowledge Engineering for Planning and Scheduling(KEPS)*, Portsmouth, NH, June 2014.
- [2] Masataro Asai and Alex Fukunaga. Fully Automated Cyclic Planning for Large-Scale Manufacturing Domains. In *Proceedings of the International Conference of Automated Planning and Scheduling(ICAPS)*, Portsmouth, NH, June 2014.
- [3] Masataro Asai and Alex Fukunaga. Solving Large-Scale Planning Problems by Decomposition and Macro Generation. In *Proceedings of the International Conference of Automated Planning and Scheduling(ICAPS)*, Jerusalem, Israel, June 2015.

PROFESSIONAL SERVICES

Subreviewer for Association for Advancement of Artificial Intelligence (2015).

One of my planning domain CELL-ASSEMBLY is added to SIGAPS “Real and Realistic Planning Domains” by Patrik Haslum at <http://users.cecs.anu.edu.au/~patrik/sigaps/index.php?n=Main.RealDomains>.

WORK EXPERIENCE

- 12/2011–09/2012 Internship at Metamoji.inc. Prototyped a drawing-chat system for iPad. Both the server and the client side are written in Javascript with Node.js and Titanium Mobile.
- 04/2012–08/2012 Teaching Assistant in “Field Work - Introductory Course on Automobiles”, under Project Professor Kohei Kusaka. Advised the students from a safety standpoint while they learn the mechanism of a vehicle through the maintenance.
- 04/2013–08/2013 Teaching Assistant in “Experiments in Information and Environmental Sciences”, under Assoc. Prof. Haruo Saito. Assisted students assemble and calibrate analog or digital circuits to read the physical value of the experimental equipment.

03/2014–09/2014 Internship at LogicVein, Inc., a developer of a Configuration Management System for network routers and switches. Worked on the technical product manual (more than 200 pages long) and converted it into web pages, which is now bundled with their software.

TECHNICAL SKILLS

Programming Skills: Logic-based, Constraint, Object-Oriented, Functional, Type-based programming. Metaprogramming, DSL, Compile-time optimization. Applying TDD and Continuous Integration in practice.

Programming Languages: C, C++, Java, Python, Ruby, Bash, Javascript/Coffeescript, Emacs Lisp, Common Lisp

Software skills: Git, jQuery, Node.js, bootstrap.js, CSS3, HTML5, NIS, NFS, Torque, VPN, IP routing, network monitoring, Unix-based OSes

Hardware skills: Digital and Analog circuits, microcontrollers(Arduino, PIC), machining/welding

LANGUAGE ABILITY

Japanese: native

English: TOEFL 105/120 (Reading:29/30, Listening:29/30, Speaking:22/30, Writing:25/30, Dec 2014). I enjoy discussion on programming on Reddit, Github, Skype and IRC channels almost every day.

COMMUNITY SERVICES / OTHER ACTIVITIES

(present) Open source activities on Github. Notable projects are:

(2015) trivia, trivia.balland2006 : Trivia is an extensible pattern matching compiler in Common Lisp. It gained several stars on github.

(2012) macascript : (now obsolete) a homoiconic language that compiles into javascript.

(2013–present) Managing Torque-based compute clusters in the laboratory. Maintaining the NFS/NIS-based file sharing and login name synchronization. To alleviate the power capacity limitation, I split the cluster into 2 locations and connected the LANs via secure VPN.

(2011–2012) Professional engineering activity on engine modification on Mazda Miata '89-'04 under Project Professor Kohei Kusaka. Activities include full engine rebuilding, mechanical engineering (I changed the compression ratio by milling the engine header by 0.70mm using a large face mill), fuel map / ignition timing optimization (with Javascript-based visualizer & hex-file editor), development of variable resonance intake controller (Arduino).

(2011) Certification in “basic course on machining technique” by Prof. Ryu Chikayama.

(2005–2007) Development of Bipedal robot with embedded microcontroller (Microchip®PIC and analog servo motors)

UNDERGRADUATE THESIS ABSTRACT

In the literature of large-scale traffic simulation, one of the major approaches is called a microscopic multiagent model. It simulates the behavior of each car (an agent) to produce the macroscopic emergent phenomena, e.g. traffic-jams, therefore, developing the appropriate agent model is the key factor to maintain the simulation accuracy. One critical aspect of agent behavior is called a cooperative behavior. We have implemented an agent interaction model based on Spatiotemporal RRT(St-RRT) to simulate the cooperative behavior and evaluated the effectiveness of our approach.

MASTERS THESIS ABSTRACT

In Automated Planning & Scheduling (P&S), domains such as factory assembly requires the planner program to assemble many identical instances of a particular product. While modern classical planners can generate assembly plans for single instances of a complex product, generating plans to manufacture many instances of a product is beyond the capabilities of standard planners. We proposed ACP, a system which, given a model of a single instance of a product, automatically reformulates and solves the problem as a cyclic planning problem. We showed that our ACP system can successfully generate cyclic plans for problems which are too large to be solved directly using standard planners.