CURRICULUM VITAE

MASATARO ASAI, PH.D

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MAIN RESEARCH INTEREST

Neural-Symbolic Systems (Deep Learning + Classical AI), Domain-independent search/planning/reasoning.

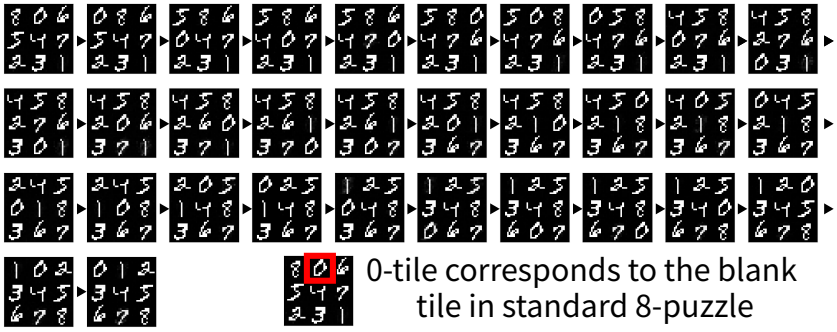

Figure 1: Result of visually solving 8-puzzle using a Deep Neural Network and a Classical Planner. [1]

EDUCATION

04/2013–03/2018 *Ph.D* (M.A. received on 03/2015). Artificial Intelligence, Heuristic Search, Planning, Scheduling, Optimization. Advisor: A. Fukunaga

04/2009–03/2013 B.Eng in Traffic Simulation. Multi-Agent Model, Spatial Search. Advisor: S. Yoshimura. H. Fujii.

AWARDS

Research Fellow (DC2), Japan Society for the Promotion of Science (Equivalent of NSF Grant in Japan; stipends and individual research budget of 10000 USD/year)(Apr. 2016-)

JSAI Annual Conference Student Incentive Award, The Japanese Society for Artificial Intelligence (Mar. 2017)

WORK EXPERIENCE

04/2018–present. Research Staff Member at **IBM Research Tokyo,** "embodied learning" group. Studying Neural-Symbolic systems.

08/2016–11/2016 Research Internship at **IBM Research Ireland.** Project name: Robust Activity Planning and Scheduling with Multi-Modal Travel. Developed an efficient algorithm for multi-worker routing.

12/2011–09/2012 Internship at Metamoji.inc. Prototyped a drawing-chat system for iPad. Both the server/client sides are written in Javascript with Node.js and Titanium Mobile.

SELECTED PUBLICATIONS

[1] Masataro Asai and Alex Fukunaga. Classical Planning in Deep Latent Space: Bridging the Subsymbolic-Symbolic Boundary. In **Proc. AAAI Conference on Artificial Intelligence (accept ratio 26%, CORE2017 Rank: A*)**, New Orleans, Louisiana, USA, February 2018.

[2] Masataro Asai, Akihiro Kishimoto, Adi Botea, Radu Marinescu, Elizabeth M. Daly, and Spyros Kotoulas. Efficient Optimal Search under Expensive Edge Cost Computation. In **Proc. International Joint Conference on Artificial Intelligence (IJCAI) (accept ratio 26%, CORE2017 Rank: A*)**, Melbourne, Australia, August 2017.

[3] Masataro Asai and Alex Fukunaga. Exploration Among and Within Plateaus in Greedy Best-First Search. In **Proc. International Conference of Automated Planning and Scheduling(ICAPS) (accept ratio 33%, CORE2017 Rank: A*)**, Pittsburgh, USA, June 2017.

[4] Masataro Asai and Alex Fukunaga. Tie-Breaking Strategies for Cost-Optimal Best First Search. In **J. Artif. Intell. Res.(JAIR) (accept ratio 12%)**, volume 58, pages 67–121, January 2017.

[5] Masataro Asai and Alex Fukunaga. Tiebreaking Strategies for A^* Search: How to Explore the Final Frontier? In **Proc. AAAI Conference on Artificial Intelligence (accept ratio 26%, CORE2017 Rank: A*)**, Arizona, USA, February 2016.

[6] Masataro Asai and Alex Fukunaga. Solving Large-Scale Planning Problems by Decomposition and Macro Generation. In **Proc. International Conference of Automated Planning and Scheduling(ICAPS) (accept ratio 33%, CORE2017 Rank: A*)**, Jerusalem, Israel, June 2015.

[7] Masataro Asai and Alex Fukunaga. Fully Automated Cyclic Planning for Large-Scale Manufacturing Domains. In **Proc. International Conference of Automated Planning and Scheduling(ICAPS) (accept ratio 33%, CORE2017 Rank: A*)**, Portsmouth, NH, June 2014.

TECHNICAL SKILL

Programming Paradigm: Object-Oriented programming, Functional programming, Logic / Rule-based programming, Metaprogramming, low-level optimization, Domain Specific Language(DSL) development, compile-time optimization.

Development: Git, GitHub Flow, Test-Driven Development and Continuous Integration (Travis-CI / CircleCI).

Languages: (Professional) Common Lisp, C++, Bash, Python, Javascript / Coffeescript, C, (Intermediate) Java, (Elementary) Ruby

Frameworks: TensorFlow/Keras, Cloud (Amazon AWS, Torque/PBS, OpenLava, cfncluster), Node.js

LANGUAGE ABILITY

English: TOEFL 105/120 (Reading:29/30, Listening:29/30, Speaking:22/30, Writing:25/30, Dec 2014).

COMMUNITY SERVICES / OTHER ACTIVITIES

(present) Open source activities on Github.

(2016-) AAAI Student Member. Reviewer for ICAPS (2016), AAAI (2015).

(2015) eazy-opencl : Common Lisp interface to OpenCL 2.0 (GPGPU language similar to CUDA).

(2015) Contributer of POCL, a vender-agnostic Portable OpenCL implementation in C and C++.

(2015) trivia, trivia.balland2006 : An extensible and fast pattern matching compiler in Common Lisp.

(2012) Macascript : a homoiconic language that compiles into javascript.

(2013–present) Compute cluster maintainance and management (80 cores) with NFS/NIS/Torque-PBS. Live monitoring/power consumption management. Secure VPN network over the campus.

(2011–2012) Mechanical engineering under project professor Kohei Kusaka (former World Rally Championship co-driver): Full engine modification & rebuilding of 1.8 liter Mazda BP engine, fuel map / ignition timing optimization, map visualization and variable resonance intake system (Arduino).

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