

Yoichi Hirai

A convenience logician.

Professional Experience

- 2016-present* Formal verification engineer at Ethereum DEV UG.
- 2014-2016* Formal verification engineer at FireEye, Inc., involving verification of an operating system kernel.
- 2013-2014* Researcher at National Institute of Advanced Industrial Science and Technology (Japan).
- 2010-2011* Research assistant at Internet Initiative Japan Innovation Institute.
- 2008-2010 (summer)*
Teaching assistant for mathematical logic, the University of Tokyo.
- 2006-2009* Part-time programmer for Kokolink, Co., involving analysis and modification of PostgreSQL.

Awards/Distinctions/Research Funding

- 2011-2013* JSPS Research Fellowships for Young Scientists.
- 2010* Dean's Award.
- 2002* Classified among the 20 best candidates in Japanese Mathematical Olympiad.

Programming Languages

- proficient* Coq (ssreflect), C, EVM.
- used* Scheme, OCaml, Isabelle/HOL, Haskell, Ruby, Python, C++, VBA, Solidity.

Natural Languages

Japanese (native), English (advanced: TOEFL iBT 101).

Education

- 2010–2013 PhD course in computer science, the University of Tokyo.
- 2011–2012 Visiting student at ILPS, the University of Amsterdam.
- 2008–2010 MSc in computer science, the University of Tokyo.
- 2004–2008 BSc in information science, the University of Tokyo.

Papers, Presentations and Other Publications

Refereed Papers

- [1] Alessandro Facchini, Yoichi Hirai, Maarten Marx, Evgeny Sherkhonov: Containment for Conditional Tree Patterns. In *Logical Methods in Computer Science* **11**(2). 2015.
- [2] Yoichi Hirai: A Lambda Calculus for Gödel–Dummett Logic Capturing Waitfreedom, In *FLOPS 2012*, LNCS 7294, pp. 151–165. 2012.
- [3] Kosuke Ono, Yoichi Hirai, Masami Hagiya, Natsuko Noda and Yoshinori Tanabe: Using Coq in Specification and Program Extraction of Hadoop MapReduce Applications, In *SEFM’11*, LNCS 7041, pp. 350–365. 2011.
- [4] Yoichi Hirai and Kazuhiko Yamamoto: Balancing Weight-Balanced Trees. *Journal of Functional Programming*, **21**(03), pp. 287–307. 2011.
- [5] Yoichi Hirai: An Intuitionistic Epistemic Logic for Sequential Consistency on Shared Memory. In *LPAR-16*, LNAI 6355, pp. 272–289. Springer. 2010.

Theses

- [6] Yoichi Hirai: Hyper-Lambda Calculi, Doctoral Thesis, 2013.
- [7] Yoichi Hirai: An Intuitionistic Epistemic Logic for Asynchronous Communication, Master’s Thesis, 2010. Work supervised by Prof. Masami Hagiya.