Yusuke Izawa, Assistant Professor, PyPy Contributor

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Education

2020-2023 **Ph.D. Mathematical and Computing Science, Tokyo Institute of Technology**.
Thesis title: *Supporting multi-scope and multi-level compilation in a meta-tracing just-in-time compiler.* (GPA 3.49)

2018-2020 **M.Sc. Mathematical and Computing Science, Tokyo Institute of Technology**.
Thesis title: *Stack Hybridization: A Mechanism for Bridging Two Compilation Strategies in a Meta Compiler Framework.*

2014-2018 **B.Sc. Mathematical and Computing Science, Tokyo Institute of Technology**.
Thesis title: *BacCaml: A Meta-JIT Compiler Based on Both Tracing and Method JIT Compilations.*

Employment History

2025.06 – 2025.09 Heinrich-Heine-Universität Düsseldorf, Guest Researcher.

2023.04 – now Tokyo Metropolitan University, Assistant Professor.

2023.04 – 2024.03 IBM Research – Tokyo, Research Scientist.

2023.04 – 2023.04 JSPS Research Fellow PD. (declined)

2021.08 – 2021.10 IBM Research – Tokyo, Research Internship (Paid).

2021.04 – 2023.03 JSPS Research Fellow DC2.

2020.11 – 2023.03 Tokyo Institute of Technology, Dept. of Math. and Comp., Research Assistant.

Selected Grants, Honours and Scholarships

2025 **Tokyo Metropolitan University, Dispatching of Young Researchers to Overseas to Strengthen Research Capabilities**. Living expenses are covered by Tokyo Metropolitan University Fund.

2024 **Graint-in-Aid for Research Activity Start-up**. Research expenses are convered by KAKENHI.

2023 **Research Fellowship for Young Scientists (JSPS PD).** Fellowship from the Japan Society for the Promotion of Science (JSPS), covering living expenses. Research expenses covered by KAKENHI. (declined)

2021 **Research Fellowship for Young Scientists (JSPS DC2)**. Fellowship from the Japan Society for the Promotion of Science (JSPS), covering living expenses. Research expenses covered by KAKENHI.

2020 **JST Strategic Basic Research Programs ACT-X**. Research expenses covered by Japan Science and Technology Agency (JST).

2019 **2nd Place, Graduate Category, ACM Student Research Competition,** *Association for Computing Machinery*. **[*]**

Selected Publications

Journal

1 Yusuke Izawa, Hidehiko Masuhara, Carl Friedrich Bolz-Tereick, and Youyou Cong. "Threaded Code Generation with a Meta-Tracing JIT Compiler." In: *Journal of Object Technology* (2022), 2:1–11. ISSN: 1660-1769. 🔗DOI: 10.5381/jot.2022.21.2.a1. arXiv: 2106.12496.

2 Shusuke Takahashi, Yusuke Izawa, Hidehiko Masuhara, and Youyou Cong. "An approach to collect object graphs for data-structure live programming based on a language implementation framework." In: *Journal of Information Processing* 30 (2022), pp. 451–463. ⚲DOI: 10.2197/ipsjjip.30.451.

Conference Proceedings

1 Yusuke Izawa, Hidehiko Masuhara, and Carl Friedrich Bolz-Tereick. "A Lightweight Method for Generating Multi-Tier JIT Compilation Virtual Machine with a Meta-Tracing Compiler Framework." In: *39th European Conference on Object-Oriented Programming (ECOOP 2025)*. Vol. 333. Leibniz International Proceedings in Informatics (LIPIcs). Bergen, Norway: Schloss Dagstuhl – Leibniz-Zentrum für Informatik, 2025, 8:1–8:28. eprint: http://arxiv.org/abs/2504.17460.

2 Yusuke Izawa, Junichiro Kadomoto, Hidetsugu Irie, and Shuichi Sakai. "Designing a Reactive Programming Language for Shape-Adaptive Computers." In: *2024 31st Asia-Pacific Software Engineering Conference (APSEC)*. 2024, pp. 452–456. ⚲DOI: 10.1109/APSEC65559.2024.00058.

3 Yusuke Izawa and Hidehiko Masuhara. "Amalgamating Different JIT Compilations in a Meta-Tracing JIT Compiler Framework." In: *Proceedings of the 16th ACM SIGPLAN International Symposium on Dynamic Languages*. DLS 2020. Virtual, USA: Association for Computing Machinery, Nov. 17, 2020, pp. 1–15. ISBN: 9781450381758. ⚲DOI: 10.1145/3426422.3426977.

Selected Academic Services

2025   🔖 Program Co-Chair, VMIL 2025.

  🔖 Programming and Programming Language Workshop (PPL), Program Committee.

2024   🔖 External Reviewer, The Programming Journal, Volume 8. Issue 2.

  🔖 Reviewer, ACM Transactions on Architecture and Code Optimization.

  🔖 Reviewer, ACM Transactions on Software Engineering and Methodology.

  🔖 Program Committee, MPLR 2024, ICCQ 2024, MoreVMs 2024.

2023   🔖 Program Committee, ICSME 2023 (Industry Track), ICCQ 2023.

  🔖 Artifact Evaluation Committee, The Programming Journal, Volume 8.

Teaching

2024   🔖 Research Seminar for Electric Engineering and Computer Science. Tokyo Metropolitan University.

  🔖 Scripting Language Exercise. Tokyo Metropolitan University.

  🔖 Information System Experiment I, II. Tokyo Metropolitan University.

  🔖 Programming Exercise (EECS) II. Tokyo Metropolitan University.