

## EXPERIENCE

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### National Institute of Informatics 国立情報学研究所

Postdoctoral Researcher

Advisor: Prof. Taro Sekiyama (Foundations of Software Science Group)

Tokyo, Japan  
April 2025 – March 2026 (Expected)

- Working on type systems for lexical effect handlers.

### University of Hong Kong 香港大學

Doctoral Student / Research Assistant

Advisor: Prof. Bruno C. d. S. Oliveira (Programming Languages Group)

Hong Kong, China  
September 2019 – April 2025

- Formalized a type-safe foundation for named and optional arguments based on intersection and union types.
- Conducted research around *Compositional Programming* (CP), a new modular programming paradigm that solves challenges such as the expression problem and type-safe dynamic inheritance; Contributed to three projects:
  - *Next-Gen CP*: a new in-browser implementation of CP and an experimental compiler targeting JavaScript;
  - *Compositional Embedding*: applying CP to embedded domain-specific languages (EDSL);
  - $F_i^+$ : the mechanically formalized core calculus for CP, retrofitted with call-by-name and type-directed operational semantics, and further extended with mutable references ( $F_{im}^+$ ).

### Tokyo Institute of Technology 東京工業大学

Exchange Student

Advisor: Prof. Hidehiko Masuhara (Programming Research Group)

Tokyo, Japan  
April 2017 – February 2018

- Conducted research on object-oriented high-performance computing and contributed to two relevant projects:
  - *Ikra-Cpp*: a C++/CUDA EDSL for the structure-of-arrays layout;
  - *Ikra-Ruby*: a Ruby EDSL for array-based GPU computing.

## EDUCATION

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### University of Hong Kong 香港大學

PhD in Computer Science

Field of Study: Programming Languages

Hong Kong, China  
July 2025

### Zhejiang University 浙江大学

BEng (Hons) in Computer Science and Technology

Affiliation: Qiushi Science Class, Chu Kochen Honors College

Hangzhou, China  
June 2019

## PUBLICATIONS

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7. Yaozhu Sun, Xuejing Huang, and Bruno C. d. S. Oliveira. **Type-Safe Compilation of Dynamic Inheritance via Merging**. *ACM Transactions on Programming Languages and Systems*, Volume 47, Issue 4, December 2025.
6. Yaozhu Sun, Bruno C. d. S. Oliveira. **Named Arguments as Intersections, Optional Arguments as Unions**. In *ESOP (European Symposium on Programming)*, 6 May 2025.
5. Wenjia Ye, Yaozhu Sun, and Bruno C. d. S. Oliveira. **Imperative Compositional Programming: Type Sound Distributive Intersection Subtyping with References via Bidirectional Typing**. In *OOPSLA (ACM SIGPLAN International Conference on Object-Oriented Programming Systems, Languages, and Applications)*, 23 October 2024.
4. Yaozhu Sun, Utkarsh Dhandhanika, and Bruno C. d. S. Oliveira. **Compositional Embeddings of Domain-Specific Languages**. In *OOPSLA (ACM SIGPLAN International Conference on Object-Oriented Programming Systems, Languages, and Applications)*, 10 December 2022.
3. Andong Fan, Xuejing Huang, Han Xu, Yaozhu Sun, and Bruno C. d. S. Oliveira. **Direct Foundations for Compositional Programming**. In *ECOOP (European Conference on Object-Oriented Programming)*, 16 June 2022.

2. Weixin Zhang, Yaozhu Sun, and Bruno C. d. S. Oliveira. **Compositional Programming**. *ACM Transactions on Programming Languages and Systems*, Volume 43, Issue 3, September 2021.
1. Matthias Springer, Yaozhu Sun, and Hidehiko Masuhara. **Inner Array Inlining for Structure of Arrays Layout**. In *ARRAY@PLDI (ACM SIGPLAN International Workshop on Libraries, Languages, and Compilers for Array Programming)*, 19 June 2018.

## INDUSTRIAL EXPERIENCE

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**International Digital Economy Academy** 粤港澳大湾区数字经济研究院 Shenzhen, China  
 Compiler Development Intern, Digital Infrastructure Innovation *May – August 2023*

- Worked on the MoonBit compiler, which is written in OCaml and targets WebAssembly, and mainly contributed code for dead code analysis, access control, and `{cont,loop}`ification using join points.

**Microsoft Research Asia** 微软亚洲研究院 Beijing, China  
 Research Intern, Machine Learning Group *April – July 2019*

- Worked on a distributed computing engine in the team of ML Systems.

**Huawei 2012 Labs** 华为 2012 实验室 Hangzhou, China  
 Compiler Development Intern, Programming Languages Lab *July – August 2018*

- Contributed to the Clang-based compiler frontend for Huawei’s AI chips.
- Contributed to the Python infrastructure of Huawei’s deep learning framework.

## AWARDS

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**APLAS Student Research Competition** AAFS  
 First Prize & Audience Awards (as the first author) *November 2023*

**European Conference on Object-Oriented Programming** AITO  
 Distinguished Artifact Award (as the second author) *July 2021*

**ASC Student Supercomputer Challenge** Asia Supercomputer Community and Inspur Group  
 First Prize (as a team member) *May 2018*

**Mobile Application Innovation Contest** MOE, Tsinghua U. and Apple Inc.  
 Second Prize (as the team leader) *September 2016*

**Parallel Application Challenge** CCF TCHPC and Intel Corporation  
 Bronze Award in Optimization Track (as a team member) *November 2015*

**National Olympiad in Informatics in Provinces** China Computer Federation (CCF)  
 First Prize in Jiangsu Province (individual) *December 2012*

## ACADEMIC ACTIVITIES

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**Program Committee:** PLDI’25 SRC.

**Artifact Evaluation Committee:** `<Programming>` vol.11, OOPSLA’25, ECOOP’24, POPL’24, ICFP’23, PLDI’23, APLAS’22.

**External Reviewer / Subreviewer:** Scheme’25, OOPSLA’24, ECOOP’24, APLAS’23, GPCE’22, ECOOP’22, SBLP’21.