

Ningning Xie

Professional Positions

- Aug 2023- **Assistant Professor.**
University of Toronto, Toronto, Canada.
- Nov 2022- **Research Scientist.**
Google DeepMind, Toronto, Canada
- Oct 2021-2022 **Research Associate.**
University of Cambridge, Cambridge, UK.
- May-Sept 2021 **Research Intern.**
DeepMind, London, UK (remote from Montreal, Canada)
- Jan-Aug 2020 **Research Intern.**
Microsoft Research, Redmond, WA.
- Aug-Nov 2019 **Software Engineer Intern.**
Google, New York City, NY.

Education

- 2021 **Ph.D., Computer Science.**
University of Hong Kong, Hong Kong
- 2015 **B.S. (with Honors), Computer Science and Technology.**
Zhejiang University, Hangzhou, China

Grants, Awards, and Honors

- 2025 ACM SIGPLAN Distinguished Paper Award (ICFP 2025)
- 2025 ACM SIGPLAN Distinguished Paper Award (PLDI 2025)
- 2023 Publication of the Year, University of Cambridge Hall of Fame Awards (PLDI 2023)
- 2023-2028 NSERC Discovery Grant
- 2021 ACM SIGPLAN Distinguished Paper Award (PLDI 2021)
- 2020 EECS Rising Stars, UC Berkeley
- 2020 ACM SIGPLAN Distinguished Paper Award (POPL 2020)
- 2020 Special issue of ACM Transactions on Programming Languages and Systems (ESOP'18)

Publications

- ICFP'25 Tsung-Ju Chiang, **Ningning Xie**. *Multi-Stage Programming with Splice Variables*. *30th International Conference on Functional Programming*. *ACM SIGPLAN Distinguished Paper Award*
- PLDI'25 Andong Fan, Han Xu, **Ningning Xie**. *Practical Type Inference with Levels*. *46th Conference on Programming Language Design and Implementation*. *ACM SIGPLAN Distinguished Paper Award*
- PLDI'25 Gordon Plotkin, **Ningning Xie**. *Handling the Selection Monad*. *46th Conference on Programming Language Design and Implementation*.

- ICFP'24 Tsung-Ju Chiang, Jeremy Yallop, Leo White, **Ningning Xie**. [Staged Compilation with Module Functors](#). *29th International Conference on Functional Programming*.
- ICFP'24 **Ningning Xie***, Daniel D. Johnson*, Dougal Maclaurin, Adam Paszke. [Parallel Algebraic Effect Handlers](#). *29th International Conference on Functional Programming*.
- ICFP'23 **Ningning Xie**, Leo White, Olivier Nicole, Jeremy Yallop. [MacoCaml: Staging Composable and Compilable Macros](#). *28th International Conference on Functional Programming*.
- TyDe'23 Adam Paszke, **Ningning Xie** [Infix-extensible Record Types for Tabular Data](#). *8th ACM SIGPLAN International Workshop on Type-Driven Development*.
- PLDI'23 Jeremy Yallop, **Ningning Xie**, Neel Krishnaswami. [flap: A Deterministic Parser with Fused Lexing](#). *44th Conference on Programming Language Design and Implementation*. [Publication of the Year, University of Cambridge Hall of Fame Awards](#).
- APLAS'22 Xu Xue, Bruno C. d. S. Oliveira, **Ningning Xie**. [Applicative Intersection Types](#). *20th Asian Symposium on Programming Languages and Systems*.
- OOPSLA'22 **Ningning Xie**, Youyou Cong, Kazuki, Ikemori, Daan Leijen. [First-class Names for Effect Handlers](#). *37th ACM International Conference on Object-Oriented Programming, Systems, Languages, and Applications*.
- ECOOP'22 Baber Rehman, Xuejing Huang, **Ningning Xie**, Bruno C. d. S. Oliveira. [Union Types with Disjoint Switches](#). *36th European Conference on Object Oriented Programming*.
- MLSys'22 **Ningning Xie**, Tamara Norman, Diminik Grewe, Dimitrios Vytiniotis. [Synthesizing Optimal Parallelism Placement and Reduction Strategies on Hierarchical Systems for Deep Learning](#). *5th Conference on Machine Learning and Systems*.
- POPL'22 **Ningning Xie**, Matthew Pickering, Andres Löb, Nicolas Wu, Jeremy Yallop, Meng Wang. [Staging with Class: A Specification for Typed Template Haskell](#). *49th Symposium on Principles of Programming Languages*.
- ICFP'21 **Ningning Xie**, Daan Leijen. [Generalized Evidence Passing for Effect Handlers: Efficient Compilation of Effect Handlers to C](#). *26th International Conference on Functional Programming*.
- PLDI'21 Alex Reinking*, **Ningning Xie***, Leonardo de Moura, Daan Leijen. [Perceus: Garbage Free Reference Counting with Reuse](#). *42nd Conference on Programming Language Design and Implementation*. [ACM SIGPLAN Distinguished Paper Award](#)
- Haskell'20 **Ningning Xie**, Daan Leijen. [Effect Handlers in Haskell, Evidently](#). *13th Haskell Symposium*.
- ICFP'20 **Ningning Xie**, Jonathan Brachthäuser, Daniel Hillerström, Philipp Schuster, Daan Leijen. [Effect Handlers, Evidently](#). *25th International Conference on Functional Programming*.
- POPL'20 **Ningning Xie**, Richard A. Eisenberg, Bruno C. d. S. Oliveira. [Kind Inference for Datatypes](#). *47th Symposium on Principles of Programming Languages*. [ACM SIGPLAN Distinguished Paper Award](#)
- ECOOP'20 **Ningning Xie**, Bruno C. d. S. Oliveira, Xuan Bi, Tom Schrijvers. [Row and Bounded Polymorphism via Disjoint Polymorphism](#). *34th European Conference on Object Oriented Programming, ECOOP 2020*.
- TOPLAS'20 **Ningning Xie**, Xuan Bi, Bruno C. d. S. Oliveira, Tom Schrijvers. [Consistent Subtyping for All](#). *ACM Transaction on Programming Languages and Systems, TOPLAS 2020*.
- ICFP'19 Gert-Jan Bottu, **Ningning Xie**, Koar Marntirosian, Tom Schrijvers. [Coherence of Type Class Resolution](#). *24th International Conference on Functional Programming*.
- ESOP'19 Xuan Bi, **Ningning Xie**, Bruno C. d. S. Oliveira, Tom Schrijvers. [Distributive Disjoint Polymorphism for Compositional Programming](#). *28th European Symposium on Programming, ESOP 2019*.

- ESOP'18 **Ningning Xie**, Xuan Bi, Bruno C. d. S. Oliveira. *Consistent Subtyping for All*. *27th European Symposium on Programming*. *Selected for Special Issue of ACM Transaction on Programming Languages and Systems*
- ESOP'18 **Ningning Xie**, Bruno C. d. S. Oliveira. *Let Arguments Go First*. *27th European Symposium on Programming*, ESOP 2018.

Professional Activities

Program Chair

- Haskell 2025 18th ACM SIGPLAN International Symposium on Haskell
- HIW 2021 13th Haskell Implementors' Workshop

Organizer

- POPL 2026 Publicity Chair.
- ICFP 2025 Programming Languages Mentoring Workshop (PLMW) Co-chair.
- PLDI 2025 Artifact Evaluation Co-Chair.
- POPL 2025 Publicity Chair.
- ICFP 2024 Programming Languages Mentoring Workshop (PLMW) Co-chair.
- PLDI 2024 Artifact Evaluation Co-Chair.

Program Committee

- 2025 ASPLOS. PLDI. ICFP.
- 2024 TACAS. WITS. POPL SRC. OCaml.
- 2023 POPL. PLDI. PADL. TFP. TyDe.
- 2022 ICFP. TFP. FLOPS. Scala. ML. HOPE. SPLASH SRC.
- 2021 PADL
- 2019 Haskell. HIW.

Steering Committee

- 2020-2023 Haskell Symposium Steering Committee

Teaching

- CSC2126: Topics in Programming Languages
Fall 2024, Fall 2025
- CSC324: Principles of Programming Languages
Winter 2024, Fall 2024, Fall 2025
- CSC2125: Types and Programming Languages
Fall 2023