Computer Laboratory, University of Cambridge
Cambridge CB3 0FD
☎ (+44) 7857094318
✉ ningning.xie@cl.cam.ac.uk
🖥 xnning.github.io

Ningning Xie

Professional Positions

Oct 2021-   **Research Associate**.
University of Cambridge, Cambridge, UK
Advisor: Jeremy Yallop and Neel Krishnaswami

May-Sept 2021   **Research Intern**.
DeepMind, London, UK.
Mentor: Dimitrios Vytiniotis.

Jan-Aug 2020   **Research Intern**.
Microsoft Research, Redmond, WA.
Mentor: Daan Leijen.

Aug-Nov 2019   **Software Engineer Intern**.
Google, New York City, NY.
Team: Google Search.

Education

Aug 2021   **Ph.D., Computer Science**.
University of Hong Kong, Hong Kong
Advisor: Bruno. C. d. S. Oliveira.

April 2017   **M.Phil., Computer Science**.
University of Hong Kong, Hong Kong

July 2015   **B.S. (with Honors), Computer Science and Technology**.
Zhejiang University, Hangzhou, China
GPA 3.9/4.0, Rank 2% (4/204). Outstanding Graduate (Top 5%).

Selected Honors and Awards

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 (TOPLAS)

Publications

ECOOP'22   Baber Rehman, Xuejing Huang, Ningning Xie, Bruno C. d. S. Oliveira. Union Types with Disjoint Switches.

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*, MLSys 2022.

POPL'22   Ningning Xie, Matthew Pickering, Andres Löh, Nicolas Wu, Jeremy Yallop, Meng Wang. Staging with Class: A Specification for Typed Template Haskell. *49th Symposium on Principles of Programming Languages*, POPL 2022.

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*, ICFP 2021.
PLDI'21	Alex Reinking*, Ningning Xie*, Leonardo de Moura, Daan Leijen. Perceus: Garbage Free Reference Counting with Reuse. *42rd Conference on Programming Language Design and Implementation*, PLDI 2021. (**Distinguished Paper Award**)
Haskell'20	Ningning Xie, Daan Leijen. Effect Handlers in Haskell, Evidently. *13th Haskell Symposium*, Haskell 2020.
ICFP'20	Ningning Xie, Jonathan Brachthäuser, Daniel Hillerström, Philipp Schuster, Daan Leijen. Effect Handlers, Evidently. *25th International Conference on Functional Programming*, ICFP 2020.
POPL'20	Ningning Xie, Richard A. Eisenberg, Bruno C. d. S. Oliveira. Kind Inference for Datatypes. *47th Symposium on Principles of Programming Languages*, POPL 2020. (**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*, ICFP 2019.
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*, ESOP 2018. (**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.

Workshops

PEPM'22	Ningning Xie*, Daniel D. Johnson*, Dougal Maclaurin, Adam Paszke. Parallel Algebraic Effect Handlers. *ACM SIGPLAN Workshop on Partial Evaluation and Program Manipulation*, PEPM 2022, co-located with POPL 2022.
HOPE'21	Ningning Xie, Youyou Cong, Daan Leijen. First-class Names for Effect Handlers. *ACM SIGPLAN Workshop on Higher-Order Programming with Effects*, HOPE 2021, co-located with ICFP 2021.
HIW'18	Ningning Xie, Richard A. Eisenberg. Coercion Quantification. *10th Haskell Implementors' Workshop*, HIW 2018, co-located with ICFP 2018.
TFP'17	Ningning Xie, Bruno C. d. S. Oliveira. Towards Unification for Dependent Types. *18th Symposium on Trends in Functional Programming*, TFP

Professional Activities

Steering Committee

2020-2023	Haskell Symposium Steering Committee

Program Chair

HIW 2021	13th Haskell Implementors' Workshop

Program Committee

POPL 2023	50th Symposium on Principles of Programming Languages
HOPE 2022	9th Workshop on Higher-Order Programming with Effects
Scala 2022	13th Scala Symposium
ICFP 2022	27th International Conference on Functional Programming
TFP 2022	23rd Symposium on Trends in Functional Programming
FLOPS 2022	16th International Symposium on Functional and Logic Programming
PADL 2021	23rd International Symposium on Practical Aspects of Declarative Languages
Haskell 2019	12th Haskell Symposium
HIW 2019	11th Haskell Implementor's Workshop

Artifact Evaluation Committee

PLDI 2020	41st Conference on Programming Language Design and Implementation
ICFP 2019	24th International Conference on Functional Programming

External Reviewer

ICFP 2019, ECOOP 2019, FLOPS 2018, ESOP 2017, APLAS 2017, APLAS 2016

Student Volunteer

ESOP 2019, ICFP 2018, PLDI 2018, APSys 2016

Invited Talks

Language Theory into Practice, A Play in Three Acts

April 2021	Google Brain
April 2021	Cornell University
April 2021	University of Toronto
April 2021	Microsoft Research Redmond
Mar 2021	Carnegie Mellon University
Mar 2021	University of Waterloo (CS)
Mar 2021	ETH Zurich
Mar 2021	University of Wisconsin-Madison
Feb 2021	EPFL
Feb 2021	Max Planck Institute for Software Systems
Feb 2021	University of Waterloo (ECE)
Feb 2021	Georgia Institute of Technology

Staging with Class: A Specification of Typed Template Haskell

May 2022	YOW! Lambda Jam 2022.
Dec 2021	Programming Languages Seminar. EPFL.

Efficient Compilation of Algebraic Effect Handlers.

Dec 2021	International Symposium on High Confidence Software. Peking University.
Oct 2021	8th International Workshop on Dependable and Secure Software Systems. ETH Zurich.

Perceus: Garbage Free Reference Counting with Reuse.

Mar 2021	Laboratory for Foundations of Computer Science. The University of Edinburgh.

Type-based Language Design.

Dec 2020	Programming Languages Seminar. Peking University.
Dec 2020	John Hopcroft Center for Computer Science. Shanghai Jiao Tong University.

	Dependent Types in Haskell.
Dec 2018	Hong Kong Functional Programming Meetup. Hong Kong.
	Consistent Subtyping for All.
May 2018	Penn PLClub. University of Pennsylvania. PA, US.

Teaching

Aug 2021	[Tutorial] Programming with Effect Handlers and FBIP in Koka @ ICFP 2021
Nov 2019	[Instructor] Haskell 101, *Google, New York City*
Spring 2019	[Teaching Assistant] Principles of Programming Languages, *University of Hong Kong*
Fall 2017	[Teaching Assistant] Functional Programming, *University of Hong Kong*

Mentoring

June 2022	[Panelist] Programming Language Mentoring Workshop (PLMW) @ PLDI 2022
Oct 2021-	[Mentoring] SIGPLAN Long-Term Mentoring Program (SIGPLAN-M)
Jan 2021	[Mentoring] Programming Language Mentoring Workshop (PLMW) @ POPL 2021
Nov 2020	[Mentoring] Programming Language Mentoring Workshop (PLMW) @ SPLASH 2020
2020	[Mentoring] Xu Xue (PhD)
2020-2022	[Mentoring] Baber Rehman (PhD), Xuejing Huang (PhD)