Curriculum Vitae
Li, Kwing Hei

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Basic Info

Preferred name: Heili

Email: hei.li@cs.au.dk

Web: https://hei411.github.io/

Research Topics

The very heart of my research interests is programming languages. I develop mathematical models and methods that enable us to design, implement, and reason about computer programs, especially those that involve probability and concurrency.

At the moment, I am also interested in related topics, such as formal verification, type theory, and distributed systems.

Education

2023 - 2027	Ph.D. in Computer Science (in progress)
	Aarhus University
2022 - 2023	M.Phil in Advanced Computer Science (Pass with Distinction)
	King's College, University of Cambridge
	Title: Wait-Free Task Solvability of Asynchronous Distributed Models [pdf]
2019 - 2022	B.A. Hons. in Computer Science with Mathematics (1st class)
	Churchill College, University of Cambridge
	Title: Type Systems for Functional Reactive Programming [pdf]

Experience

2022	Research Intern
	Max Planck Institute for Software Systems
	Supervisor: Prof. Derek Dreyer and Mr. Michael Sammler
2021	Undergraduate Research Intern
	University of Cambridge Machine Learning Systems Lab
	Supervisor: Prof. Nicholas Lane and Dr. Pedro Porto Buarque de Gusmao
2020	Automation Engineer Intern
	DreamsAI, Hong Kong

Awards

2022	Beatrice Blore-Browne Prize Scholarship
2022	Cambridge Trust and King's College TPP Alan Turing Scholarship

2022	University of Oxford Hong Kong Jockey Club Graduate Scholarship (declined)
2022	Churchill Prize Scholarship
2021	Beatrice Blore-Browne Prize Scholarship
2021	Churchill Prize Scholarship
2021	Churchill Computer Science Talks Series – Audience Favourite Talk
2020	Churchill Honorary Scholarship

Publications

2025 — Approximate Relational Reasoning for Higher-Order Probabilistic Programs [pdf]
Philipp G. Haselwarter, Kwing Hei Li, Alejandro Aguirre, Simon Oddershede Gregersen, Joseph Tassarotti, Lars Birkedal
POPL 2025

2024 — Tachis: Higher-Order Separation Logic with Credits for Expected Costs [pdf]
Phillipp G. Haselwarter, Kwing Hei Li, Markus de Medeiros, Simon O. Gregersen, Alejandro Aguirre, Joseph Tassarotti, Lars Birkedal
OOPSLA 2024

2024 — Error Credits: Resourceful Reasoning about Error Bounds for Higher-Order Probabilistic Programs [pdf]
Alejandro Aguirre, Philipp G. Haselwarter, Markus de Medeiros, Kwing Hei Li, Simon Oddershede Gregersen, Joseph Tassarotti, Lars Birkedal
ICFP 2024
Recipient of Distinguished Paper Award

2022 — Secure Aggregation for Federated Learning in Flower [pdf]
Kwing Hei Li, Pedro Porto Buarque de Gusmão, Daniel J. Beutel, Nicholas D. Lane
DistributedML 2021

Unpublished Drafts

2023 — The Fundamental Theorem of Asynchronous Distributed Models in Intuitionistic Logic [pdf]
Kwing Hei Li

2022 — Formalizing May's Theorem [pdf]
Kwing Hei Li

2022 — Flower: A Friendly Federated Learning Research Framework [pdf]
Daniel J. Beutel, Taner Topal, Akhil Mathur, Xinchi Qiu, Javier Fernandez-Marques, Yan Gao, Lorenzo Sani, Kwing Hei Li, Titouan Parcollet, Pedro Porto Buarque de Gusmão, Nicholas D. Lane

Roles

2022 - 2023	Safety and Welfare Officer Churchill College Boat Club
2021 - 2022	Computing Officer Churchill College JCR Committee
2020 - 2022	Coxing Captain Churchill College Boat Club

Skills

Coding: Haskell, C++, Java, OCaml, Coq, Python, Eva
Languages: English (fluent), Cantonese (fluent), Mandarin (conversational)