Jialu Bao

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Education

Ph.D. student in Computer Science   *Ithaca, NY*
CORNELL UNIVERSITY   *Aug. 2021 – Aug. 2025*
GPA: 3.90/4.3 (Transferred from UW – Madison with thesis advisor Justin Hsu)

Ph.D. student in Computer Sciences   *Madison, WI*
UNIVERSITY OF WISCONSIN – MADISON   *Aug. 2019 – July 2021*
GPA: 3.87/4.0

B.A. in Mathematics and Computer Science   *Ithaca, NY*
CORNELL UNIVERSITY   *Jan. 2016 – May 2019*
GPA: 4.08/4.3 (*Summa cum laude* in CS, *cum laude* in Mathematics)

Conference Papers

Bluebell: An Alliance of Relational Lifting and Independence For Probabilistic Reasoning
Jialu Bao, Emanuele D'Osualdo, Azadeh Farzan
Symposium on Principles of Programming Languages (POPL), 2025
URL: https://arxiv.org/abs/2402.18708

A Categorical Approach to DIBI models
Tao Gu, Jialu Bao, Justin Hsu, Alexandra Silva, Fabio Zanasi
International Conference on Formal Structures for Computation and Deduction (FSCD), 2024
URL: https://arxiv.org/abs/2401.05842

Data-Driven Invariant Learning for Probabilistic Programs
Jialu Bao, Nitesh Trivedi, Drashti Pathak, Justin Hsu, Subhajit Roy
International Conference on Computer Aided Verification (CAV), 2022
URL: https://arxiv.org/abs/2106.05421

A separation logic for negative dependence
Jialu Bao, Marco Gaboardi, Justin Hsu, Joseph Tassarotti
Symposium on Principles of Programming Languages (POPL), 2022
URL: https://arxiv.org/pdf/2111.14917

A Bunched Logic for Conditional Independence
Jialu Bao, Simon Docherty, Justin Hsu, Alexandra Silva
ACM/IEEE Symposium on Logic in Computer Science (LICS), 2021
URL: https://arxiv.org/abs/2008.09231

Hidden Community Detection on Two-layer Stochastic Models: a Theoretical Perspective
Jialu Bao, Kun He, Xiaodong Xin, Bart Selman, John E Hopcroft
International Conference on Theory and Applications of Models of Computation (TAMC), 2020
URL: https://arxiv.org/abs/2001.05919

Journal Articles

Structure Amplification on Multi-layer Stochastic Block Models
Kun He, Xiaodong Xin, Jialu Bao, Meng Wang, Bart Selman, John E Hopcroft
ACM Transactions on Knowledge Discovery from Data (TKDD)
URL: https://arxiv.org/abs/2108.00127

Data-Driven Invariant Learning for Probabilistic Programs
Jialu Bao, Nitesh Trivedi, Drashti Pathak, Justin Hsu, Subhajit Roy
Formal Methods in System Design, 2024
URL: https://arxiv.org/abs/2106.05421

Workshop Publications

Mixture Languages

Oliver Richardson, Jialu Bao

Languages for Inference (LAFI), 2024

URL: https://baojia.lu/assets/preprints/mixture.pdf

Awards

2023	**Honorable Mention**, Jane Street Graduate Research Fellowship	*New York, NY*
2022	**Departmental Nominee (**$< 3\%$**)**, Cornell CS's Nomination for Google PhD Fellowship	*Ithaca, NY*
2022	**Distinguished Paper Award (**$< 0.5\%$**)**, Computer Aided Verification (CAV)	*Haifa, Israel*
2020	**Departmental Nominee**, UW-Madison's Nomination for Microsoft Ada Lovelace Fellowship	*Madison, WI*
2019–2020	**Departmental Fellowship (**$< 5\%$**)**, Computer Sciences, UW – Madison	*Madison, WI*

Teaching Experience

Graduate Teaching Assistant   *Aug. 2021 – May 2022*

CORNELL COMPUTING AND INFORMATION SCIENCE   *Ithaca, NY*

- Designed reading questions and helped students' presentations for CS 6182: Foundations of Probabilistic Programming (FA21)
- Led recitations and guided students' final projects for CS 3110: Data Structures and Functional Programming (SP22)

Undergraduate Teacher Assistant   *Jan. 2017 – May 2019*

CORNELL COMPUTING AND INFORMATION SCIENCE   *Ithaca, NY*

- Taught recitations twice a week, and designed OCaml exercises and a new interpreter assignment for CS 3110 (SP19).
- Held weekly office hours and graded homework for CS 4820 (FA18), CS 3110 (SP18), CS 2850 (FA17), INFO 2950 (SP17).

Internships

Research Intern   *May 2024 – Aug. 2024*

BASIS RESEARCH INSTITUTE   *New York, NY*

- Enhanced probabilistic programming language Pyro's primitive plate to automatically managing latent variables

Research Engineering Intern   *June 2018 – Aug. 2018*

AQR CAPITAL MANAGEMENT   *Greenwich, CT*

- Implemented a model of interests rate swap for backtesting

Professional Service

Mentor for SIGPLAN-M	*Jan. 2025 -*
Operations Team of SIGPLAN-M	*Nov. 2022 - Aug. 2024*
Organizer for Cornell Great Works in PL Seminar	*Jan. 2024 - May 2024*
Organizer for Cornell PL Discussion Group	*June 2022 - May 2024*
Reviewer of Cornell CS PhD Applications	*Dec. 2022 - Jan. 2023*
Mentor for Cornell Applicant Support Program	*Oct. 2022 - Nov. 2022*
Student Volunteer for CAV 2021	*July 2021*
Mentor for Wisconsin Science and Computing Emerging Research Stars	*Jan. 2021 - May 2021*
Student Volunteer for POPL 2021	*Jan. 2021*
Event Organizer for Cornell's Chapter of ACM	*Oct.2016 – Dec. 2018*

Reviewer

LAFI 2026, LICS 2025, FM 2024, CSF 2024, CONCUR 2022, PLDI Artifact Evaluation