

Jeffery Wang

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RESEARCH INTERESTS

Formal methods Semantics Logic Type theory Program analysis/verification/synthesis
Concurrent and distributed systems Abstract Interpretation Automated Reasoning

EXPERIENCE

- **Courant Institute of Mathematical Sciences** May 2021 - Present
Research Assistant New York, NY

EDUCATION

- **New York University** September 2021 - May 2025
Bachelor of Arts in Computer Science New York, USA
 - GPA: 3.753/4.00 **Major GPA: 3.91/4.0**
- **New York University in Paris** September 2024 - December 2024
Study-away program Paris, France

PROJECTS

- **Karousos: Efficient Auditing of Event-driven Web Applications** May 2022 - March 2024
Advisors: [Michael Walfish](#) and [Aurojit Panda](#) 
 - Maintained the verification system Karousos
 - Support Karousos with a real-world application Wiki.js
 - Developed concurrent workloads for wiki.js and performed experiments with Karousos R-order logging technique Vs. Orochi-JS logging technique.
- **Calculational Design of Hyperlogics by Abstract Interpretation** August 2023 - Dec 2024
Advisors: [Patrick Cousot](#)
 - Proposed Algebraic Abstract Domain that could be instantiated to trace/reachability semantics and investigated the (co-)continuity of trace/reachability semantics with proof missing in previous works.
 - Formalized abstractions of hyperproperties: the join, the homomorphic, the elimination, the principal ideal, the order ideal, the frontier order ideal, and the chain limit algebraic abstractions, as well as their combinations and conjunctive abstractions, that lead to new algebraic generalizations of hyperlogics, including the $\forall^*\exists^*$, $\forall\forall^*$, and $\exists^*\forall^*$ hyperlogics.
 - Formalized a hierarchy of hyperproperties abstraction and indicated their correspondent hyperproperties in related works they subsume

PUBLICATIONS

- [1] Ioanna Tzialla, Jeffery Wang, Jingyi Zhu, Aurojit Panda, and Michael Walfish. 2024. **Efficient Auditing of Event-driven Web Applications**. In *Proceedings of the Nineteenth European Conference on Computer Systems (Athens, Greece) (EuroSys' 24)*, Association for Computing Machinery, New York, NY, USA, 12081224.. DOI: <https://dl.acm.org/doi/10.1145/3627703.3650089>
- [2] Patrick Cousot and Jeffery Wang. 2025. **Calculational Design of Hyperlogics by Abstract Interpretation**, 52nd ACM SIGPLAN Symposium on Principles of Programming Languages (POPL 2025), DOI: doi.org/10.1145/3704852

HONORS AND AWARDS

- **Computer Science Prize for the Most Promising Student in the Junior Year** May 2024
Computer Science Department at Courant Institute of Mathematical Sciences, NYU
 - typically awarded to one CS student every year
- **Dean's Undergraduate Research Fund** December 2023
College of Art and Science, NYU
 - 1250\$ research fund for the HyperLogics project, attended the undergraduate research conference at NYU

SKILLS AND GRADUATE COURSES

- **Programming Languages and Tools:** OCaml, Javascript, Java, Coq, Elixir, C/C++, Python
- **Graduate Courses:** Honor Programming Languages, Abstract Interpretation, Distributed Systems, Verification, Quantum Computing, Big Data and ML systems, Geometric Methods in Algorithm Design