Jui-Hsuan WU

Born October 31st, 1996
From New Taipei, Taiwan

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Education

2025.03–Now Postdoctoral Researcher
CNRS, LIP, École Normale Supérieure de Lyon, Lyon, France
Funded by the ANR project RECIPROG.

2021.10–2024.12 Ph.D. in Computer Science
Advised by Dale Miller and Beniamino Accattoli.
Institut Polytechnique de Paris & Inria Saclay, Palaiseau, France.

2019.09–2020.08 Master 2 (M.Sc.) in Theoretical Computer Science, with honours
École Normale Supérieure & MPRI, Paris, France.

2018.09–2019.08 Master 1 in Computer Science
École Normale Supérieure & MPRI, Paris, France.

2017.09–2018.08 Licence 3 (B.Sc.) in Computer Science, with highest honours
École Normale Supérieure and Paris Diderot University, Paris, France.

2017.09–2021.08 Élève Normalien
Major in Computer Science, minor in Mathematics
École Normale Supérieure, Paris, France.

2015.09–2017.08 CPGE (2-year preparatory program leading to entrance exams to the French *Grandes Écoles*).
Lycée Janson-de-Sailly, Paris, France.

Publications

June 2024 *Positive Focusing is Directly Useful*, with Beniamino Accattoli. To appear in 40th International Conference on Mathematical Foundations of Programming Semantics (MFPS 2024), Oxford, United Kingdom.

Nov. 2023 *Proofs as Terms, Terms as Graphs*. In 21st Asian Symposium on Programming Languages and Systems (APLAS 2023), Taipei, Taiwan.

Feb. 2023 *A positive perspective on term representation*, with Dale Miller. In 31st EACSL Annual Conference on Computer Science Logic (CSL 2023), Warsaw, Poland.

April 2021 *Combinatorial Proofs and Decomposition Theorems for First-order Logic*, with Dominic Hughes and Lutz Straßburger. In 36th Annual ACM/IEEE Symposium on Logic in Computer Science (LICS 2021), Roma, Italy.

Talks

Jan. 2025 *Proofs as Terms and Terms as Programs, Positively*, LoCal Seminar, LIPN, Villetaneuse, France.

June 2024 *Positive Focusing is Directly Useful*, MFPS 2024, University of Oxford, Oxford, United Kingdom.

June 2024 *Positive Focusing is Directly Useful*, Proofs and Algorithms Seminar, LIX, Palaiseau, France.

Jan. 2024 *Proofs as Terms, Positively*, Syntax Meets Semantics, IRIF, Paris, France.

Nov. 2023 *Proofs as Terms, Terms as Graphs*, APLAS 2023, Academia Sinica, Taipei, Taiwan.

Aug. 2022 *A positive perspective on term representation: work in progress*, LFMTP 2022, Technion, Haifa, Israel.

June 2022 *A positive perspective on term representation*, Proofs and Algorithms Seminar, LIX, Palaiseau, France.

July 2019 *Subject reduction in Lambdapi and injectivity of function symbols*, Deducteam Seminar, LSV, Cachan, France.

Dec. 2018 *APLL: a focusing-based automated prover for linear logic*, Workshop on machine proofs of linear logic, LIP, Lyon, France.

Research Interests

Mathematics Proof Theory, Logic

CS Programming Languages, Functional Programming, λ-calculus, Rewriting, Type Theory

Research Experiences

2020 (M2) **On first-order combinatorial proofs**
Internship supervised by Lutz Straßburger at INRIA Saclay.
A more compact representation of first-order combinatorial proofs using sequent calculus and deep inference rules, and a simpler completeness proof of first-order combinatorial proofs.

2019 (M1) **Checking the type-safety of rewrite rules in the $\lambda\Pi$-calculus modulo**
Internship supervised by Frédéric Blanqui and Valentin Blot at INRIA Saclay.
Implementation of an algorithm for checking the type preservation of rewrite rules and design of an algorithm for checking the injectivity of function symbols in the $\lambda\Pi$-calculus modulo.

2018 (L3) **Automated proof search in linear logic**
Internship supervised by Olivier Laurent at ENS de Lyon and Youakim Badr at INSA Lyon.
Development of an automated prover (available on GitHub) for propositional linear logic and its intuitionistic fragment implemented in OCaml. In order to guarantee the validity of proofs, it is also possible to export proof certificates using the proof assistant Coq.

Other Experiences

May 2024 Participation in the colloquium "Differential λ-calculus and differential linear logic, 20 years later", CIRM, Marseille, France.

July 2023 Participation in the 5th International School on Proof Theory, University of Barcelona, Barcelona, Spain.

Nov. 2022 Participation in the 4th International School on Proof Theory, Utrecht University, Utrecht, Netherlands.

Aug. 2022 Student volunteer at the Federated Logic Conference (FLoC), Technion, Haifa, Israel.

Jan. 2022 Participation in the Linear Logic Winter School, CIRM, Marseille, France.

July 2019 Participation in the 11th International School on Rewriting, Mines ParisTech, Paris, France.

Teaching Experiences

Autumn 2023 Teaching assistant (56h), *CSE101 Computer Programming*, École Polytechnique.

Autumn 2022 Teaching assistant (56h), *CSE101 Computer Programming*, École Polytechnique.

Spring 2022 Teaching assistant (56h), *CSE102 Computer Programming*, École Polytechnique.

Awards and Honors

Sep. 2017 ENS scholarship for foreign students accepted through *concours*

Skills

Languages Mandarin (mother tongue), English (bilingual), French (bilingual), German (basic)

Programming OCaml, Python, Coq

Others Git, Linux, LaTeX