Wei-Lin Wu

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EDUCATION

- **University of California Santa Cruz.** Santa Cruz, CA, USA 09/2017-12/2023
  - Ph.D. in Computer Science, GPA: 3.96/4.00 Advisor: Phokion G. Kolaitis
  - Dissertation: A Study on the Expressive Power of Homomorphism Counts
- **National Taiwan University.** Taipei, Taiwan 09/2007-06/2009
  - M.S. in Computer Science and Information Engineering Advisor: Kun-Mao Chao
  - Thesis: A Study on Expressing the Hamiltonian Path Problem in Second-Order Logic with Some Additional Predicate Symbols
- **National Cheng Kung University.** Tainan, Taiwan 09/2003-06/2007
  - B.S. in Electrical Engineering
  - Outstanding Achievement Award for Physics Contest 2004: Top 0.5% among 1630 participants
  - Excellent Achievement Award for Calculus Contest 2004: Top 2% among 2324 participants

RESEARCH

Graph Theory, Database Theory, Algorithm Design, Logic in Computer Science with emphasis on Finite Model Theory

PUBLICATIONS

Alphabetical order of authorship by the convention of theoretical computer science

- B. ten Cate, V. Dalmau, Ph. G. Kolaitis, and W.-L. Wu. When do homomorphism counts help in query algorithms? In arXiv:2304.06294 (to appear in ICDT 2024).
- W.-L. Wu. Query Algorithms Based on Homomorphism Counts. In *Structure Meets Power Workshop (Extended Abstract)*, pages 24 - 26, July 4, 2022.
- A. Atserias, Ph. G. Kolaitis, and W.-L. Wu. On the Expressive Power of Homomorphism Counts. In *36th Annual ACM/IEEE Symposium on Logic in Computer Science, LICS 2021, Rome, Italy, June 29 - July 2, 2021*, pages 1 - 13. IEEE, 2021.

TALKS

- Contributed Talk for *Structure Meets Power Workshop ICALP 2022*, Paris, France (participated virtually via Zoom): Query Algorithms Based on Homomorphism Counts, 2022
- Contributed Talk for *Finite and Algorithmic Model Theory Seminar 22051*, Schloss Dagstuhl, Germany (invited participant): On Capturing Some Equivalence Relations by Homomorphism Counts, 2022
- Invited Talk for *Logic in Computer Science Special Session of the 2024 ASL Annual Meeting*, Iowa State University, Iowa, USA: A Study of the Expressive Power of Homomorphism Counts (tentative), 2024

TEACHING EXPERIENCE

Teaching assistant at University of California Santa Cruz for the undergraduate courses: Introduction to Programming (**Java**), Programming Abstractions (**Python**), Comparative Programming Languages (**Python**, **Scala**, **Prolog**, **Haskell**), Introduction to Analysis of Algorithms, Computational Models

LANGUAGES

Programming (C/C++, Python, Java, Objective-C, Haskell), Theorem-Proving (Agda), Typesetting (LaTeX)

WORK EXPERIENCE

- **Research Assistant**, Institute of Information Science, Academia Sinica, Taipei, Taiwan 10/2016-07/2017
  - Assisted research on formal methods of process calculi and session types and research on the algorithmic problems and complexity of fragments of counting logic
- **Software Engineer**, Fonestock Technology Inc., Taipei, Taiwan 05/2016-09/2016
  - Performed supportive work in maintenance and restructuring of source code of iOS apps for stock investment, improved app performance by better algorithms, and resolved issues of app crashes
- **Research Assistant**, Institute of Information Science, Academia Sinica, Taipei, Taiwan 11/2010-12/2011
  - Assisted research on computer-aided theorem-proving, derived formal proofs using Agda and Coq, and organized tutorials on functional programming (mainly Haskell) and on formalization of proofs in intuitionistic logic and foundational mathematics