

Xuanyu Peng

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BIO

I'm Xuanyu Peng, a third-year Ph.D. student in computer science at the University of California, San Diego, advised by [Prof. Loris D'Antoni](#). My research aims to enhance software reliability and development efficiency through program synthesis, with a current focus on its applications in specification mining, static analysis, and fuzzing. I am also interested in machine learning for code generation. I obtained my B.S. in Computer Science from Turing Class, Peking University, where I worked with [Prof. Yingfei Xiong](#) and [Prof. Di Wang](#).

RESEARCH EXPERIENCE

University of California, San Diego (Transferred from UW-Madison) Sep 2024 – Present

Research Assistant, mentored by Loris D'Antoni

- Synthesizing Static Analyzers: Developed **NiceToMeetYou**, a program synthesis framework for abstract transformers in abstract domains heavily used by production compilers, achieving higher precision than LLVM-provided transformers.
- Specification Inference: Built **Loud**, a specification inference framework that extracts sound and precise demonic/angelic properties from nondeterministic programs.

Amazon Web Services

Jun 2025 – Sep 2025

Applied Scientist Intern, mentored by Victor Nicolet and Joey Dodds

- Data Transformation Synthesis: Proposed a schema-guided approach for synthesizing JSON transformations, applied to automatic generation of cloud scripts and cloud configuration updates.

Peking University

Sep 2021 – Jun 2023

Research Assistant, mentored by Yingfei Xiong and Di Wang

- Synthesizing Memoization: Proposed an approach to synthesize correct and efficient memoization algorithms from naive implementations.

EDUCATION

University of California, San Diego (Transferred from UW-Madison)

La Jolla, CA, USA

Ph.D. in Science in Computer Science

Sep 2024 - Present

University of Wisconsin, Madison

Madison, WI, USA

Ph.D. in Science in Computer Science

Sep 2023 - Aug 2024

Peking University

Beijing, China

Bachelor of Science in Computer Science & Technology

Sep 2019 - June 2023

GPA: **3.80**/4.0 (rank: **14th**/200)

PUBLICATIONS

- [1] Xuanyu Peng*, Dominic Kennedy*, Yuyou Fan, Ben Greenman, John Regehr, and Loris D'Antoni. "Nice to Meet You: Synthesizing Practical Abstract Transformers". In: *POPL* (2026).
- [2] Kanghee Park*, Xuanyu Peng*, and Loris D'Antoni. "LOUD: Synthesizing Strongest and Weakest Specifications". In: *OOPSLA* (2025).
- [3] Yican Sun, Xuanyu Peng, and Yingfei Xiong. "Synthesizing Efficient Memoization Algorithms". In: *OOPSLA* (2023).

SCHOLARSHIPS AND AWARDS

Gold Award (7th place), The 44th ACM-ICPC Asia Regionals Xuzhou Site	2019
Silver Award , The 5th CCPC Xiamen Site	2019
Peking University Merit Student	2020
Ubiquant Scholarship	2021
John Hopcroft's Scholarship at Peking University	2022

SKILLS

Programming Languages C/C++, Python, Java, Rust, Coq, Racket, LaTeX