# Xuanyu Peng

 DOFYPXY | home.dofy.top | dofypxy@pku.edu.cn | +86.198.0118.9807

## Bio

I'm Xuanyu Peng, an undergraduate student from Turing Class, Peking University. I am now a member of Programming Language Lab, supervised by Prof.Yingfei Xiong. My research interests include program synthesis, program verification and blockchain security. I am also interning at Veridise, a company that provides a solution for hardening the security of the blockchain ecosystem.

## Research Experience

**Program Languages Lab, Peking University**                                      Mar 2021 - present
*Research assistant, supervised by Prof.Yingfei Xiong*
Topics: Synthesizing Efficient Memoization Algorithms from Logical Specification

**Veridise Inc.**                                                                 May 2022 - present
*Research intern, supervised by Prof.Isil Dillig and Prof.Yu Feng*
Topics: Formal Verification on Smart Contracts

## Education

**Peking University**                                                             **Beijing, China**
**Turing Class**, *Bachelor of Science in Computer Science & Technology*          Sep 2019 - present
GPA: 3.812/4.0 (rank: 12th/200)

## Projects

**Synthesizing Efficient Memoization Algorithms from Logical Specification**

- First to formalized core concepts of memoization.
- Proposed a framework of automatic synthesis of effective memoization algorithm given declarative logical specification.
- The solutions to many classic algorithmic problems such as the Longest Common Sequence and 01-Knapsack can be synthesized.

*Advisor: Yingfei Xiong. Collaborator: Yican Sun*

**Medjai: Symbolic Reasoning for Starknet/Cairo dApps**                           Link to Demo

- Execute Cairo program with symbolic inputs and explore all its possible program states.
- Automatically check whether certain properties hold on Cairo program.

*Advisor: Isil Dillig. Collaborator: Yanju Chen, Jacob Van Geffen, Shankara Pailoor*

**A Dataset of Formalized Algorithmic Problem (use Minizinc)**

- Formalized 50+ problems from NOIP-J/S (Chinese National Olympiad of Informatics for Junior/Senior High School Students).
- The final goal of dataset size is 200+.

*Advisor: Yingfei Xiong. Collaborator: Siyuan Li*

## Scholarships and Awards

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

## Skills

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