Derek Qin

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EDUCATION

California Institute of Technology, Pasadena, California — *Sept 2020 - June 2024 (Anticipated)*
- B.S. Major: Computer Science, Minor: Information and Data Sciences; **GPA:** 4.1/4.0
- **Selected Coursework: CS:** Data Structures, Software Development, Computing Systems, Algorithms, Relational Databases, Data Mining, Learning Systems, Computer Vision; **Math:** Discrete Math, Linear Algebra, Statistics

SKILLS

- **Programming Languages:** Python, C, C++, Java, SQL, Rust, JavaScript/TypeScript, MATLAB
- **Tools:** Git, Mercurial, Docker, AWS, FEniCS
- **Development:** HTML/CSS, React, Angular, Express.js, Node.js, RxJS, Django
- **Machine Learning:** PyTorch, TensorFlow, Keras, scikit-learn, Numpy, pandas, Jupyter Notebooks

EXPERIENCE

Google — Kirkland, WA
Incoming Software Engineer Intern — *Summer 2022*
- Developed data-driven usage warning API and UI for Google Cloud Compute Engine.

San Capital Management — Remote
Software Engineer Intern — *Winter 2022 - Present*
- Built performant blockchain transaction parser and market making platform for early stage trading startup

Caltech Tensor Lab — Pasadena, CA
Machine Learning Research Intern — *Winter 2021 - Present*
- Improved Fourier Neural Operator performance on PDEs with nonperiodic boundary conditions by up to 15% by designing a Fourier Continuation-based deep neural network, deployed using AWS

PROJECTS

Turtle Run Game — C, SDL
- Created vector-based physics engine in C and 2D side scrolling game with full GUI rendered with SDL

Phantom Traffic Jam Alleviation Using Networked Autonomous Cars — Python
- Designed and implemented autonomous vehicle control system that decreases phantom traffic jam duration by 12.2% and increases vehicle flow rate by 18%

Smart Traffic Signal Controller — Python, Google Maps API
- Developed signal management algorithm resulting in 18% average decrease in wait time, confirmed using implemented Monte Carlo simulation in Python

LEADERSHIP AND TEACHING

Caltech CS 38/138 Algorithms — Pasadena, CA
Teaching Assistant — *Spring 2022*

Association for Young Scientists and Innovators — Plano, Texas
Vice President, Co-founder, Advisory Board — *May 2019 - Present*
- Co-founded and led a 501(c)(3) nonprofit to mentor students in scientific research with over 400 members
- Organized inaugural AYSI Summer Coding Institute, which taught over 300 middle and high school students essential skills in MIT App Inventor and Machine Learning

SELECTED AWARDS

- USA Physics Olympiad, Medalist (National Top 200 Individuals)
- 5x American Invitational Mathematics Exam (AIME) Qualifier
- 8x American Mathematics Competition (AMC 10/12) Distinguished Honor Roll