

# Derek Qin

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## EDUCATION

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**California Institute of Technology**, Pasadena, California

*Sept 2020 - June 2024*

- B.S. Major: Computer Science, Minor: Information and Data Sciences; **GPA:** 4.1/4.0
- **Selected Coursework:** **CS:** Data Structures, Software Development, Functional Programming, Computing Systems, Algorithms, Relational Databases, Data Mining, Learning Systems, Computer Vision; **Math:** Discrete Math, Linear Algebra, Statistics, Probability Models, Statistical Inference, Bayesian Statistics

## SKILLS

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- **Languages:** Python, C, C++, Java, JavaScript/TypeScript, SQL, Rust, x86-64 Assembly, MATLAB
- **Tools:** Git, Mercurial, Docker, AWS, FEniCS
- **Development:** HTML/CSS, Angular, React, Express.js, Node.js, RxJS, Jasmine, Django
- **Machine Learning:** PyTorch, TensorFlow, Keras, scikit-learn, Numpy, pandas, Jupyter Notebooks

## EXPERIENCE

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**Google**

Kirkland, WA

*Software Engineer Intern*

*Summer 2022*

- Created Java API to poll GCP Cloud Monitoring for global internal DNS usage by VM instances
- Added UI to Compute Engine Angular front-end with informative design for smooth DNS migration
- Optimized for page load performance using asynchronous route resolvers and deferred loading

**San Capital Management**

Remote

*Software Engineer Intern*

*Winter 2022 - Present*

- Built performant blockchain transaction parser and market making platform in Rust and Python for early stage trading startup

**Caltech Tensor Lab**

Pasadena, CA

*Machine Learning Research Intern*

*Winter 2021 - Fall 2021*

- 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

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**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%

## LEADERSHIP AND TEACHING

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**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

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- 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