# David Chen

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## Education

**Harvey Mudd College** *Claremont, CA*
B.S. in Computer Science and Mathematics (GPA: 3.99), Dean's List, Harvey S. Mudd Merit Scholar *Aug 2021 - May 2025*
Coursework: Data Structures, Algorithms, Software Engineering, Machine Learning (graduate), Computer Systems, Big Data, Computability, Programming Languages, Operations Research, Math Analysis, Abstract Algebra, Discrete, Probability, Econometrics
Activities: HMC Data Science Co-President, Student Mentor, CS Grader/Tutor, Game's Club Co-President, Badminton Club

**Princeton High School** *Princeton, NJ*
GPA: 4.0/4.0 (4.7/5 weighted), National Merit, National AP Scholar, Captain of Math Team and Algorithms Club *Sep 2017 - June 2021*
Independent Study (Stanford graduate courses): Artificial Intelligence, Computer Vision, Natural Language Processing, Deep Learning

## Work Experience

**Databricks** *San Francisco, CA*
SOFTWARE ENGINEER INTERN - DATABASE INFRA *May 2024 - Aug 2024*
- Developed online primary/replica table checksumming to pre/post-validate 768 Azure MySQL Single Server to Flex Migrations
- Leveraged Temporal workflows to orchestrate durable execution, async retries, transaction timeouts, and database stress watchdogs
- Built and benchmarked maximally efficient multithreaded checksumming with 2x validation speed and reduced database blocks
- Designed production workflow with restored primary and cascading database replication to minimize production impact
- Created versatile sysbench synthetic data traffic generation script used across team to estimate database impact and test designs

**Stripe** *South San Francisco, CA*
SOFTWARE ENGINEER INTERN - SERVICE FRAMEWORKS *May 2023 - Aug 2023*
- Improved cross-language gRPC support across Ruby and Java by bringing consistency and feature parity to backend infrastructure
- Created error parsers in Ruby and Java for robustly handling and decoding gRPC exceptions, migrated 40+ existing implementations
- Replaced manual creation of Ruby gRPC clients for Java services by writing Bazel rules to autogenerate Java gRPC clients in Scala
- Designed and created highly-demanded company-wide Slack command to simplify giving kudos to multiple recipients

**Google** *Pittsburgh, PA*
STEP INTERN - CLOUD AI AND INDUSTRY SOLUTIONS *May 2022 - Aug 2022*
- Created a JupyterLab Notebooks extension with React to integrate Vertex AI Pipelines
- Led design and implementation of UI support to create and interact with pipelines, simplifying workflow and minimizing boilerplate
- Maintained UX design and code consistency with existing JupyterLabs extensions, refactoring shared functionality and tests
- Researched potential methods for pipeline visualization, exploring open source alternatives and documenting limitations

**Scout AI (backed by Y Combinator)** *Mountain View, CA*
SOFTWARE ENGINEER INTERN *May 2021 - Aug 2021*
- Designed and built live restaurant-facing promotion iOS app with Swift/Firebase, created demos for pitch deck
- Set up database to sync with consumer app, emulated and deployed Node.js Cloud Functions for notifications and data cleaning

**Slingshot** *Pittsburgh, PA*
SOFTWARE ENGINEER *Oct 2020 - May 2021*
- Unified GitHub, Trello, and Google Apps in responsive company-wide automation portal with React and Firebase
- Led teaching and outreach events: taught a 6-week algorithms bootcamp and wrote problems for the UAE's first algorithmic codathon

## Academic Research

**ALPAQA Lab - Lucas Bang** *Claremont, CA*
STUDENT RESEARCHER - PATH COMPLEXITY *Aug 2022 - Dec 2023*
- Developed improved code complexity metrics for predicting symbolic execution path explosion, published/presented at FormaliSE
- Designed, tested, and implemented extension from recursion to inter-procedural calls, identified and fixed major computational bug

**Microfluidics and Biomaterials Lab - Steven Santana** *Claremont, CA*
DATA VISUALIZATION AND WEB DEVELOPMENT *Sep 2021 - May 2022*
- Created visualizations for critical reflection on the engineering design process to promote non-linear design and diverse team culture
- Built personalized web dashboard for individual and team self-reflection, automatically integrating plots from Python and R

**Backgammon - Arthur Benjamin** *Claremont, CA*
SUNDEMAN RESEARCH ASSISTANT *Mar 2022 - May 2022*
- Developed website for rapid iteration regression testing to create optimal, memorable backgammon strategies based on game state

## Projects and Awards

**Citadel - Data Open Championship (2021-2022):** 1st Place Globals ($100,000 prize), 1st Place West Coast ($10,000 prize)
**ICPC North American Championship 2024:** Qualified, Top 50 National
**Ruzzle Solver:** Designed first mobile-only Python program to automate a word finding game with OCR, graph theory, and prefix tries
**Reddit Username Generator:** Trained LSTM/GRU models on 400k usernames for text generation, integrated into React through TF.js
**Arduino & RasPi Self-Driving Car:** Built obstacle avoiding robot, tuned ROS models in Gazebo sim to speed up maze navigation by 37%

## Skills

**Languages:** Fluent in Python, TypeScript, JavaScript; Familiar with Java, Scala, C, C++, Ruby, Swift, SQL, Haskell
**Technologies:** React, Next.js, MySQL, MongoDB, Temporal, Firebase, Jest, Bazel, Dagger, Flask, Node.js, TensorFlow, Pandas, Azure