

GABRIEL CHEN

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EDUCATION

University of California Berkeley, Berkeley, CA

Bachelor of Art in Computer Science

Aug 2020

GPA 3.456 / 4.0

Berkeley City College, Berkeley, CA

Associate of Science in Mathematics with highest honor

May 2018

Academic Honor Student

GPA 4.0 / 4.0

RESEARCH INTERESTS

Computational Complexity, Algorithms Design, Hardness of Computation, and broad interests in Theory.

HIGHLIGHTED COURSES

Computer Science

Efficient Algorithms and Intractable Problems, Data Structures & Algorithms, Structure and Interpretation of Computer Programs, Discrete Mathematics and Probability Theory, Combinatoric and Discrete Probability, Computer Security, Introduction to Database System, Great Ideas of Computer Architecture (Machine Structures), Introduction to Artificial Intelligence.

Mathematics

Linear Algebra, Introduction to Mathematics Research Through Knot Theory, Basic Statistics.

Logic

Intermediate Logic.

EXPERIENCE

California Institute of Technology, CA

Researcher – Catalytic Turing Machines, CS Theory

Feb. 2020 — Present

Advisor: Chris Umans

- Theory • Computational Complexity •
- Researching the Computational Complexity of Catalytic Turing Machines

University of California Berkeley, Berkeley, CA

Reading Group Organizer – Undergraduate Theoretical Computing at Berkeley

Jan. 2020 — Mar. 2020

- Theory • Computability and Complexity •
- Organized the reading group of studying Computability and Complexity by Neil D. Jones
- Provide weekly exercise and report ideas

University of California Berkeley, Berkeley, CA

Undergraduate Researcher – Community Detection Algorithms, CS Theory

May. 2019 — Aug. 2019

Advisor: Prasad Raghavendra

- Theory • Approximation Algorithms •
- Researched Max Cut problem and Semidefinite Programming (SDP)
- Researched nearly linear running time algorithms to solve Community Detection Problem

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University of California Berkeley, Berkeley, CA

Course Reader – CS 70 Discrete Mathematics and Probability Theory

May. 2019 — Jul. 2019

- CS Theory • Discrete Math • Probability •
- Meet with course staff and discuss the best way to help students learn this hard subject
- Grade course homework and exams
- Teaching during office hours, homework party, and guerrilla sessions

University of California Berkeley, Berkeley, CA

DRP Mentee – Directed Reading Program, Mathematics Department

Jan. 2019 — May. 2019

Mentor: Arun Ganesh

- Approximation Algorithms • Graph Theory • Network Design •
- Read papers and notes on Spectral Graph Theory, MST Approximation Algorithms, Cheeger's Inequality, Network Design, Max Flow, MaxCut Problem and SDP
- Gave an end-semester presentation on Luca Trevisan's paper, "Max Cut and the Smallest Eigenvalue"

University of California Berkeley, Berkeley, CA

Undergraduate Researcher – JAMX Project, Berkeley Institute of Data Science

Jan. 2018 — May. 2018

- Python • MongoDB • React • JavaScript • HTML/CSS •
- Led the platform research group with another researcher.
- Researched different designing methods for platform and database including MongoDB, PostgreSQL, AWS, Twitter API, Google API, and React to get better performance.

University of California Berkeley, Berkeley, CA

Software Engineer Intern – Xinampa Analytics at CITRIS Foundry

Jun. 2018 — Aug. 2018

- Python • Algorithm • Theory • APIs •
- Built a gateway between SMS and Gmail to achieve better user communication experience without Twilio.
- Optimized the algorithms for mining and analyzing data to get better and more accurate output efficiently.
- Made Real Data more accessible by building an index for the data mined by a crawler.

Berkeley City College, Berkeley, CA

Teaching Assistant – to Dr. Shawn McDougal in "Linear Algebra"

Jan. 2018 — May. 2018

- Helped improving students' understanding of the subject during and after class by arranging study groups and one-to-one tutoring

Berkeley City College, Berkeley, CA

Tutor – Calculus I, Calculus II, Applied Calculus for Economics, Intro to CS

Sep. 2016 — Dec. 2016

- Instruct students individually and in groups, using various teaching methods such as lectures, discussions, and demonstrations

RELATED PROJECTS

[End-to-End Encrypted File Sharing System](#), Computer Security Project

Author

Jun. 2020 — Aug. 2020

A project of designing an end-to-end encrypted file sharing system with feature of uploading, downloading, and sharing files written in Go.

[Hamiltonian](#), Algorithms Design Project

Author

Jan. 2019 — Jun. 2019

A project of designing an algorithm to retrieve all elements presented on a graph as successful and fast as it gets.

[Neural Network Classifier](#), Artificial Intelligence Project

GABRIEL CHEN

Author

Jan. 2019 — Jun. 2019

A project to build a neural network to classify handwritten digits.

[Narcissus](#), Data Mining and Analysis Project

Author

Jun. 2018 — Present

A project currently running on a Raspberry Pi aims to mine data from Twitter and analysis it for Environmental Justice.

[JAMX](#), Computer Science & Data Science Research Project

Researching Collaborator

Jan. 2018 — Present

An undergraduate research project associate with Berkeley Institute of Data Science at UC Berkeley built with Python, React, MongoDB, and Python.

[Ada](#), Raspberry Pi Project

Author

May. 2017 – Present

Information provider and daily reminder robot written by Python.

[Nice Blog](#), Jekyll Project

Author

Mar. 2016 – May. 2017

Website framework written with Ruby, JavaScript, HTML and CSS.

AWARDS & MEMBERSHIP

Undergraduate Theoretical Computing at Berkeley

Jan. 2019 - Present

Association of Women in EECS

Aug. 2018 - Present

Phi Theta Kappa Honor Society

Jan. 2018 - Present

Information & Communication Technology Scholarship, Peralta Colleges Foundation

2017 – 2018

Academic Honor Student, Berkeley City College

Jan. 2017 – May 2018

Dean's List, Pasadena City College

Feb. 2020 – Present

SKILLS & LANGUAGES

C/C++, Java, Python, Go, SQL, HTML, CSS, JavaScript, React, MongoDB, Linux/Unix, Git, LaTeX.

Fluent in both Mandarin and English. Beginner for Spanish and Japanese.

REFERENCES

Prasad Raghavendra (CS), Arun Ganesh (CS), Dan Daniel Erdmann-Pham (Math).