

## EDUCATION

### University of California, Berkeley

GPA: 3.75/4.00 (Upper Division: 3.91) | Dean's List, Fall 2022

Berkeley, CA

August 2019 – May 2023

*B.S. Electrical Engineering and Computer Sciences*

**Relevant Coursework:** Artificial Intelligence, Databases, Cybersecurity, Computer Graphics, Computer Architecture & Machine Structures, Robotics, Designing Information Devices & Systems, Discrete Mathematics, Probability, Advanced Algorithms, Data Structures & Algorithms, Physics for Scientists and Engineers

## EXPERIENCE

### Franklin Templeton

September 2023 – Present (July 2024)

*Fixed-Term Residency: Engineering Resident, Goals Optimization Engine (GOE)*

*San Mateo, CA*

- Designed and built REST API to enable clients to explore possible investment goals based on investment preferences.
- Drastically reduced response time by modifying API design, including adding pagination functionality, implementing compression, and parallelizing server-side calculations as part of response construction.
- Created PyTest test suite to automate testing. Built React web app to demonstrate use cases for API to potential clients.
- Building PyTest-based test platform to enable entire GOE team to rapidly write new tests for new features.

### SAP Software Solutions

June 2022 – August 2022

*Supply Chain Networks: Cost Roll-Up Algorithm (Dynamic Programming)*

*Palo Alto, CA*

- Created algorithm to traverse supply chain in product, location, and time to calculate costs throughout network.
- Adopted dynamic programming, thereby reducing time complexity from exponential to polynomial and enabling rapid calculations in supply chain networks with over 5 million nodes.
- Created pipeline to enable automatic updates of these costs inside an existing SAP system.
- Substantially improved performance by parallelizing calculations in this pipeline, improving scalability. Used Ray as part of this task.

### SAP Software Solutions

June 2021 – August 2021

*Dynamic Lead Time Prediction using Machine Learning and Workflow Creation*

*Palo Alto, CA*

- Developed prototype feature to automatically learn and then predict lead times of products in supply chain networks using Machine Learning. Training data was pulled from SAP Integrated Business Planning and results updated periodically.
- Upgraded with outlier detection by implementing isolation forest.
- Prototype demonstrated live to SAP customers.
- Extra Project: Built prototype workflow with a partner to let users make database changes after supervisor approval.

### SAS Analytics Software

July 2020

*Forecasting Cross-Elasticity of Demand*

*Heidelberg, Germany*

- Forecasted cross-elasticity of demand of products by building model using Machine Learning.

## PROJECTS

### Fractal Path Tracer (Raytracing) | C++, OpenGL | [chetankhanna.net/pathtracer](http://chetankhanna.net/pathtracer)

2023

- Selected as one of 10 winning projects (out of 80 submissions).
- Built path tracer from first principles; involved learning radiometry, photometry and physics, and then implementing them.
- Built acceleration structures, enabling rendering of highly complex scenes in logarithmic time.
- Path traced hypercomplex fractals (procedurally generated) by implementing a fractal raymarcher, modifying low-level rendering pipeline code, and implementing math with hypercomplex numbers in C, by working in a group.
- Built utility simulating a moving camera using Bézier curves, in order to create video clips of scenes using path tracer.
- Containerized into Docker image and deployed on Amazon Web Services (AWS) EC2 instance, in order to allow visitors to my website to render path traced scenes with their own fractals.

### iOS Meditation App | Swift

2021

- Designed and developed iOS meditation app using Model-View-Controller design pattern. Features included 'breathe bubble', on-demand audio meditations, journal, and meditation statistics.
- Applied graphic design principles and used Figma for creating pre-development mock-ups.

### School Voting Platform | JavaScript, HTML, CSS, Node.js (with Express)

2018

- Designed and developed a voting platform (based on client-server model) for high school elections.
- Involved creating frontend and backend. Features included candidate profiles, voter authentication, and results display.

### Other Projects | Various, including Go, Python, Java, C++, C, JavaScript, and RISC-V

2016 – Present

- **Secure File Sharing (Class Project), 2023:** Architected and implemented cryptographically secure cloud-storage file sharing platform. Scored top 10 out of 400 projects after pentesting was conducted across all submissions. (*Go*)
- **ClothSim (Class Project), 2023:** Implemented real-time physics-based simulation and rendering of a piece of cloth under various physical conditions. Improved rendering performance using shaders. (*C++, OpenGL*)
- **Databases (Class Project), 2022:** Implemented relational database with B+ trees, concurrency and recovery. (*Java*)
- **Robotics, 2022:** Implemented path planning and lidar-based obstacle avoidance on TurtleBot robots. (*ROS, Python*)

## OTHER SKILLS

**Primary Languages:** Python, Java, TypeScript (including work with Node.js, React), C++, Go, SQL.

**Familiar With:** JavaScript, C, HTML, CSS, Swift. *Worked with:* RISC-V, Scheme.

**Miscellaneous Tools, Frameworks, & Libraries:** *Including but not limited to:* Object-Oriented Programming, Git, Jira, Amazon Web Services, Docker, Kubernetes, Relational Databases (PostgreSQL, MySQL), NoSQL Databases (MongoDB), Ray, OpenGL, ROS, Pandas, SciPy, scikit-learn.