

# Jeremy Tow

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## Education

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University of California, San Diego  
Bachelor of Science, Computer Engineering  
Master of Science, Computer Engineering

GPA: 3.95  
Sept 2022 - June 2025 (Expected)  
Sept 2025 - June 2026 (Expected)

Courses: Algorithm Design • Data Structures • Computer Architecture • Software Engineering • Deep Learning

## Experience

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### Researcher at Goetz Lab

Spring 2024 - Present

- Collaborating with Intel to port AmberMD, a scientific molecular dynamics code, from CUDA to SYCL
- Currently working towards publishing a paper on Amber performance with Nvidia GPUs and SYCL
- Setup self-hosted runners for GitHub actions for faster code testing
- Overhauled lab infrastructure to increase reliability and ease of maintenance
- Setup wiki system for better lab documentation, improving information access efficiency across the team

### Freelance Programmer

Summer 2021 - Winter 2023

- Automated repetitive data analysis computations for clients using Python, saving up to 40 hours per quarter
- Created systems to automate data gathering by calling REST APIs and performing web scraping

### Supercomputing Conference Student Cluster Competition

Summer 2023 - Spring 2024

- Designed a multi-node server for the 2023 Student Cluster Competition, an international supercomputing competition
- Implemented a 2.5D symmetric block-cyclic distribution for Cholesky factorization
- Optimized HPL benchmark to run on multiple nodes, tested on a multitude of hardware platforms including ARM, Intel, and AMD

### Cisco Externship

Summer 2021

- Led a team of eight people to prototype an app to simplify communication between doctors and patients. Was presented to Cisco executives as part of a contest and won second place
- Implemented a Figma design into an iOS app, using Swift and SwiftUI

## Projects

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### Fractal Music

- Used Flutter and Dart to build a cross-platform (iOS and Android) mobile client for Plex
- Built in features that either don't exist or are paywalled on the official client
- Used a man-in-the-middle proxy to reverse engineer the Plex API, which has little public documentation

### jadeOCR

- Created an open-source spaced-repetition flashcard app for Chinese with 400+ users
- Used machine learning to recognize handwritten Chinese characters and provide feedback on correctness
- Implemented OAuth with Google APIs and PassportJS, designed database schemas for MongoDB, architected REST API endpoints

### Homelab

- Using Kubernetes to host Outline, distributed across two hosts
- Using Docker to host game servers and Immich (Google Photos alternative)
- Created custom networking setup with site-to-site VPNs, multiple VLANs, and multiple DNS servers for high availability
- Hacked together solution to convert Wi-Fi signal to Ethernet using ARP-Forwarding

## Skills

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**Languages:** Python, Javascript/TypeScript, Verilog, Java, C, C++, Dart, Swift

**Frameworks:** Node, Pandas, Numpy, ExpressJS, Vue, React, Nuxt, SwiftUI, UIKit, Flutter, Django, Flask, Pylint, Pytest

**Technologies/Other:** Git, CMake, Jira, XCode, Android Studio, CLI, Networking (NAT, DNS, VPN, etc), Docker, Linux, AWS