# MARCUS ALEXANDER SCHUBERT

mschubs.github.io www.linkedin.com/in/marcus-schubert marschub@umich.edu (929) 241-7596

## Education

**University of Michigan**, Ann Arbor, MI *B.S.E Graduation: May 2025*
*Major in Computer Engineering, Minor in Mathematics* *M.S.E Graduation (anticipated): May 2026*
**GPA:** 4.0/4.0 **SAT:** 1600/1600
**Coursework:** Combinatorics, Stochastic Processes, Probability, Linear Algebra, Differential Eq, Multivariable & Vector Calculus, Machine Learning, Operating Systems, Distributed Systems, Data Structures & Algorithms, Embedded Systems
**Extracurriculars:** Quantitative Investment Society, Taiwanese American Student Association (President)

## Work Experience

**Google**, Mountain View, CA May 2024 – August 2024
*Software Engineering Intern* *C++, Python, LLM, RL*
- Designed and implemented backend for 4 Search features (contextualized and personalized modules) on Search Results Page; Proposed and launched Live Experiments rolled out to 1.8 million mobile Google Search users
- Fine-tuned reward model personalization head for AI enhanced Reinforcement Learning (RLAIF) on LLM orchestrating personalized Local Search Results Page; Generated synthetic training data and analyzed data diversity / distribution

**Google**, Sunnyvale, CA May 2023 – August 2023
*Software Engineering Intern* *GoLang, SQL*
- Contributed workflow acceleration tool to the customer management system for Google Cloud Platform's Chronicle enterprise Cybersecurity service, saving 100+ partner engineer and customer experience engineer hours
- Integrated a system into Chronicle's customer management server to track changes in customer provisioning details for 3 common customer classes; involved process scheduling, database design, and AST code parsing
- Designed dashboard used by Google customer experience engineers and Google Cloud partners to visualize provisioning process as directed graph; presented results to 20+ engineers including Chronicle executives

**Google**, New York, NY May 2022 – August 2022
*Software Engineering Intern* *Python, SQL*
- Designed and updated archival database using Python and SQL to track ownership of over 16000 tests as part of effort to strengthen integration test owner relevancy in Google Ads at Google's NYC office
- Developed analyzer in Python establishing new test owning convention; warns engineers about invalid ownership tags
- Built command line tool used by 100+ engineers to simplify ownership migration process, saving 2+ hours per engineer

## Projects and Leadership

**Bio-Inspired Robotics and Dynamical Systems Lab**, *Monte Carlo localization, Python* January 2023 – Present
- Quadcopter Team lead for fellowship-funded project on Multi Legged Robots and Animal Motion Research Team
- Implemented particle filter to generate quadcopter state estimation based on IMU data, time of flight sensor readings, and dynamics model; Resampled particle guesses using cumulative weight partitioning

**Generative Models Watermark Impossibility**, *Python, LLM, Markov Chains* March 2024 - April 2024
- Wrote proof sketch for "Watermarks in the Sand" by Zhang et al.(2023). Produced report applying Markov Chains, stationary distributions, random walks, state spaces, and directed graphs to generative models
- Performed experiment investigating perturbation oracle quality and iterations required for watermark removal

**Fullstack Browser Game**, *Javascript, Firebase, Verification Algorithms* February 2024 – March 2024
- Developed 2048 style web game to advertise cultural club event; attracted 1,000+ users
- Leveraged Firebase for leaderboard API and database; implemented validation algorithm preventing 10+ false scores

**Rusteze VS-Code Extension**, *LLM, Typescript, Python, Rust, C* April 2024 – April 2024
- Won 3rd place out of 65 teams at University of Michigan Google x MHacks 2024 AI Hackathon.
- Built VS-Code extension to migrate vulnerable C code to memory safe Rust code; Integrated Gemini API into workflow

## Skills

**Programming Languages:** C/C++, Python, Go, JavaScript, SQL, Rust, MATLAB, HTML, CSS
**Frameworks, Libraries, Tools:** Tensorflow, PyTorch, Pandas, Scikit-learn, React, React Native, Supabase, Git, Linux
**Spoken Languages:** English, Mandarin, German **Hobbies:** Basketball, Poker, Chess, Ultimate Frisbee

## Honors & awards

AIME (American Invitational Mathematics Examination) qualifier 2018, 2019