

# Shishir Iyer - Aspiring developer in parallel computing & machine learning

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## EDUCATION

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**B.S. - Computer Science, UC San Diego - GPA 3.90**

*September 2021 - March 2025*

**Relevant Coursework:** Advanced Data Structures, Theory of Computation, Algorithm Design / Analysis, Database System Principles, Deep Learning, Programming Languages, Computer Architecture, Robot Systems Design, Computer Security, Graduate Operating Systems, Compiler Construction, Graduate Parallel Computing, Intro to Cryptography

## SUMMARY

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- Driven fourth-year CS undergrad at UCSD, passionate about building robust, high-performance systems.
- Over 6 months of experience in the industry with a focus on tackling complex, multidisciplinary projects that push technological boundaries
- Known for a hands-on approach and an eagerness to innovate, with a solid foundation in core CS principles and a strong drive to develop impactful solutions
- I target outcomes when solving complex customer problems while constantly honing my skills & craftsmanship.

## SKILLS

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Python(Pytorch, Pandas, Numpy, Matplotlib) • Java • Mockito • Javascript • React • Node.js • C / C++ • CUDA  
C++ • MPI • SIMD vectorization • Bash • REST APIs • Linux • SQL • DynamoDB • Spring

## EXPERIENCE

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**CSE Tutor, UC San Diego**

*September 2024 - December 2024*

- Working as a tutor for CSE 127 (intro to computer security) at UC San Diego
- Held weekly office hours to help students debug projects and offer more explanation on course content

**Cybersecurity Engineering Intern, Intuit**

*June 2024 - August 2024*

- Continued development on the generative AI reviews for security assets (see below)
  - Utilized prompt engineering to refine LLM responses for a given user prompt
  - Made backend processing asynchronous, improving API response times by over 20x
- Enhanced unit tests for the review portal backend, increasing the code coverage by 50%
- Further improved the GenAI recommendation workflow with RAG, reducing token usage by 90%

**CSE Tutor, UC San Diego**

*March 2024 - June 2024*

- Worked as a tutor and grader for CSE 120 (principles of operating systems) at UC San Diego
- Held weekly office hours to help students debug projects and understand course content
- Helped proctor and grade in-class exams

**Software Engineering Intern, Intuit**

*June 2023 - September 2023*

- Developed a data ingestion pipeline for automating security asset reviews with generative AI

- Past security review JIRA tickets are used as training data, which get queried using AWS Athena by an AWS Lambda function and stored in a DynamoDB database
  - Data is then sent to a Vector DB where it can be ingested into the LLM
- This project aims to increase coverage of low to medium risk assets by 60%
- Made UI enhancements to the review portal by adding views for future dashboards and content

## Software Development Student Assistant, Scripps Institute of Oceanography

*February 2023 - Present*

- Worked on CoralNet, a platform that automatically annotates coral reef images using deep learning
  - Developed Pytest unit tests for Matplotlib analyses of training data
  - Designed user-friendly improvements and optimizations for the platform, such as an improved map view and displaying more information about data sources on the front page

## PROJECTS

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### [MBX - Paesani Research Group](#)

*February 2024 - Present*

- Optimized the computation for the 3-body water polynomial in MBX by modifying the file with scripts
  - Vectorized the code with SIMD instructions
  - Improved memory usage with liveness analysis and redundant computation removal
  - These improvements resulted in a 6.9x speedup for this part of the code, with further improvements planned
  - Collaborated on the latest MBX software release paper (currently a preprint) - <https://go.shr.lc/4fOPZk3>
- Publication currently in progress detailing these improvements to the MBX suite
- Technologies: C++, Python

### [Flap.js](#)

*January 2023 - March 2024*

- Team lead and maintainer for Flap.js, an open source web-based JFLAP clone developed by UCSD students used to design finite state automata
- Added support for Moore and Mealy machines and developed an automatic graph layout algorithm
- Technologies: Javascript

### [Minecraft Mapper](#)

*September 2021 - December 2021*

- Developed a plugin for Minecraft to generate a to-scale model of the Earth
  - The plugin uses GEBCO bathymetry data for terrain
  - The PRISM API is used to generate realistic biomes
- This plugin can be used to explore the geography of many different areas around the world through Minecraft
- Technologies: Java

## AWARDS AND HONORS

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### Intuit Scholarship Recipient

*May 2021 - Present*