

MARK LUCERNAS

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PROFESSIONAL EXPERIENCE

Junior Software Systems Engineer, TrustThink
San Diego, CA

July 2024 - Present

- Designed and implemented a highly scalable network topology simulation using Docker containers and GNS3 software, reducing setup time by 70%
- Led the simulation of global network topology, enabling testbed for dynamic discovery approaches for encryptor devices using discovery servers.
- Engineered emulation of network protocols for encryptor devices using SNMP networking protocol, which is vital for operational management in areas such as health and status monitoring.
- Worked as one of the lead research engineers for operational management and dynamic discovery approaches for End Cryptographic Units (ECU) or High Assurance Devices (HAD).

Software Engineer, UCSD DERConnect
San Diego, CA

Aug. 2022 - July 2024

- Spearheaded development of internal web app for university-wide smart plug device management, improving operational efficiency by 50%
- Optimized website database operations, resulting in a 6000% increase in service API data throughput
- Implemented comprehensive test automation strategies, significantly enhancing software reliability and reducing bug detection time
- Engineered automation solutions for QR code generation and dynamic CSV creation, saving 100+ hours of manual labor

TECHNICAL SKILLS

PROGRAMMING LANGUAGES	HTML, JavaScript, Python, CSS, Java, C/C++, TypeScript
FRAMEWORKS/LIBRARIES	Material UI, React.js, Bootstrap, jQuery, D3.js, Tailwind CSS, Vite, Three.js, Node.js
DATABASES	Neo4j, SQL, InfluxDB, MongoDB
DEVELOPMENT TOOLS	Git, Linux/Unix, Vim/Neovim, Docker, GitHub Actions, Postman
METHODOLOGIES	Object-Oriented Programming, Web Development, Unit Testing, RESTful APIs, Agile Project Management, MVC Design Pattern, Socket Programming, Computer Networking, Functional Programming

NOTABLE PROJECTS

Fortune Telling Web App | Team Lead

- Led frontend development team to create a top-rated web UI design in UCSD Spring 2023 cohort
- Managed full-stack development, resulting in project recognition as one of the leading initiatives

Zettelkasten Blog

- Developed an interactive 3D neuron-like force-directed graph for visualizing blog post connections using Three.js
- Integrated RSS feed support and Disqus-powered comment sections to enhance user engagement
- Authored 100+ educational blog posts in Zettelkasten format, demonstrating strong technical writing skills

Simple Router

- Implemented a functional router device simulating Internet routing protocols in a controlled network topology
- Enhanced layer 3 packet handling with support for Ethernet frames, ARP, IP forwarding, and ICMP

Game of Generals

- Architected a cross-platform board game using LibGDX and MVC design pattern
- Engineered an AI adversarial player using a custom Minimax-derived algorithm
- Implemented local networking support via Socket Programming for multiplayer functionality

EDUCATION

University of California, San Diego Bachelor of Science Computer Science 2024 Expected Graduation: December 2024	Fall 2022 - Fall 2024
San Diego Community College District Associate of Science Computer Science 2022 GPA: 3.92	Fall 2019 - Spring 2022

AWARDS

Provost Honor, University of California San Diego Consecutive UCSD honor for achieving 3.5 GPA or higher in at least twelve graded units for each quarter	2023
High Honors, San Diego Community College District SDCCD Latin Honors	2022
Dean's List, San Diego Community College District	2022