Manuel Rubio

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EDUCATION

Universidad Autónoma de Baja California   Ensenada, Baja California, Mexico
Bachelor's Degree in Computer Science   *Aug. 2021 – Present*

EXPERIENCE

Undergraduate Network Administrator   February 2024 – May 2024
Universidad Autónoma de Baja California   *Ensenada, Baja California, Mexico*
- Administered the Faculty of Science's server and hardware infrastructure (Ubuntu Server).
- Implemented new device provisioning using Clonezilla.
- Configured network interfaces, taking in count IPv4 addresses, gateways, ISP-provided DNS, and VLANs for logical segmentation, optimizing network traffic flow and ensuring a reliable network environment.

PROJECTS

Breast Cancer Prediction | *Python, Segment Anything Model, PyTorch*   August 2024 - Present
- Developed and trained deep learning algorithms for breast cancer prediction in collaboration with the *Hospital General de Ensenada* (HGE), aimed at facilitating early detection of breast cancer in patients from Baja California.

- Engineered programs for the conversion of DICOM imaging formats to standard PNG, JPEG, TIFF, and NPY formats using MPI-based parallelism, successfully converting over 70,000 medical images from the HGE, Baja California.
- Developed parallelized preprocessing programs for large-scale datasets, implementing the CLAHE algorithm with thread-based parallelism. Processed over 70,000 images from the Hospital General de Ensenada and the CBIS-DDSM dataset, achieving 90% segmentation accuracy and 80-85% accuracy in anomaly detection.

Compiler's Course Research | *Java, Ant, Python*   Augsut 2024 – Present
- Refactored deprecated features in the Classroom Object-Oriented Language (COOL) programming assignments, originally developed for Stanford's Compilers course, for use in my university's Compilers course.
- Collaborated with Dr. Everardo Gutiérrez López on research the impact of machine learning and large language models (LLMs) on compiler optimization.
- Provided guidance and mentorship to students in the Compilers course.

TECHNICAL SKILLS

Languages: C, Python, Bash, JavaScript/TypeScript
Web Frameworks: Flask, Astro.js, Next.js, React.js
Databases: PostgreSQL, MySQL, SQLite
Developer Tools: Git, Linux
Deployment: Vercel, Netlify, Github Pages, Docker

AWARDS

- 1st place in Regional (Baja California) of Copa de Comunidades, a Latinoamerican (Guatemala, Honduras, Mexico and Peru) programming contest organized by Google and omegaUp.