# Elden Deguia

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## Education

**Pearland High School** Pearland, TX
*4.0 GPA - Class Rank 3 / 709* *Aug 2019 – May 2023*

- **Relevant Coursework**: AP Computer Science A, AP Physics C: Mechanics/Electricity & Magnetism, AP Calculus BC

**University of Texas at Dallas** Richardson, TX
*Bachelor of Science in Computer Science - 4.0 GPA - Dean's List* *Aug 2023 – Dec 2026*

- **Relevant Coursework**: Data Structures & Algorithms, Computer Architecture, Operating Systems, Database Systems, Systems Programming in UNIX, Software Engineering, AI, Advanced Algorithm Design & Analysis, Computer Networks

## Technical Skills

**Languages**: Java, Python, C/C++, JavaScript/Typescript, HTML/CSS, SQL, Assembly, Verilog, Bash Scripting
**Libraries/Frameworks**: React, Node.js, Express, Flask, TensorFlow, Keras, Pytorch, OpenCV, C++ Threads
**Developer Tools**: Git, GitHub, Unix CLI, APIs, VS Code, Visual Studio, IntelliJ, Jupyter Notebook, Google Colab

## Experience

**Artificial Intelligence Society** September 2024 – December 2024
*University of Texas at Dallas* *Richardson, TX*

- Collaborated with a team of 5 members along with a project lead to research and develop Medvisor, an AI-powered medical imaging solution
- Contributed to data preparation, model training, and presentation preparation, ensuring alignment with project expectations
- Gained experience working in an agile, Scrum-based team environment, applying problem-solving and communication skills to create a real-world AI application.
- Awarded 1st Place at AIM Night, a society-wide showcase where projects were presented to a panel of judges for evaluation.

## Projects

**Medvisor** | Visit | *Python, Javascript, React, Flask, Tensorflow, OpenCV* September 2024 – December 2024

- Contributed to the development of Medvisor, a full-stack, AI-powered application which detects and diagnoses medical conditions from spine MRIs
- Preprocessed over 300 raw 3D MRI scans using **OpenCV**, extracting the most relevant slice from each scan and converting them into normalized PNGs which could be utilized to train a model
- Fine-tuned a pretrained ResNet50 model using **Tensorflow**, utilizing the preprocessed dataset to predict spinal abnormalities such as disc herniation, narrowing, and Pfirmann grade
- Developed components of the full-stack web application using **Flask** (backend API) and **React** (frontend) to deliver model predictions through an interactive interface.

**Dining Philosophers** | Github | *C++, Threads Library* March 2025

- Implemented the classic Dining Philosophers problem using Peterson's algorithm to enforce mutual exclusion without relying on built-in mutexes.
- Modeled each philosopher as an independent thread and coordinated access to shared resources while avoiding deadlock and starvation.
- Designed both **coarse-grain** and **fine-grain** synchronization variants to demonstrate different approaches to concurrency control.

**Flight Planner** | Github | *Java* April 2024

- Designed an object-oriented flight planner which utilized graph traversal algorithms to optimize city to city travel
- Implemented exhaustive search algorithms to find the three shortest paths based on cost or time preferences
- Processed user-inputted city connections to compute optimal routes