

Saif Mohammed

Systems and Biomedical Engineering Student

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Education

Cairo University – Faculty of Engineering

Expected Graduation: July 2027

Major: Systems and Biomedical Engineering

Relevant Coursework: Introduction to Deep Learning, Linear Algebra, Calculus, Probability and Statistics, OOP, DSA

Skills & Abilities

- **Programming Languages:** Proficient Python (+2 years) Familiar Java(3 months), C++(3 months), JavaScript, Bash
- **Libraries & Frameworks:** PyTorch, TensorFlow, Numpy, Pandas, Matplotlib, Seaborn, Scikit-Learn, Gradio, Flask
- **Other:** Git, GitHub, CI/CD, Docker, Linux(Ubuntu)

Experience

• **AI Developer intern at Siemens EDA**

July 2025 - August 2025

Implemented AI-driven functionality for Siemens' tools using APIs, RAG System, large language models (LLMs), and prompt engineering.

Projects

Seq2Seq Model From Scratch GitHub | *Deep Learning, Sequence Models, LSTM*

- Implemented a Seq2Seq architecture based on Sutskever et al.'s paper "Sequence to Sequence Learning with Neural Networks".
- Developed an English–French translation system using this architecture with robust data preprocessing using the Eng–Fra parallel 34,802 pairs corpus with 38.32 BLEU score and 172.75 sentences/sec inference speed.

Alzheimer's Disease Modeling with PINNs GitHub | *Machine Learning, PDE - Collaborative Research Project*

- Developed a physics-informed neural network (PINN) to model tau protein diffusion–reaction dynamics in Alzheimer's disease.
- Improved PDE parameter prediction accuracy using symbolic regression for interpretability.
- Result: Advanced a reproducible codebase for computational pathology.

Mymicrograd GitHub | *Machine Learning, Autograd*

- Implemented a minimal autograd engine following Andrej Karpathy's tutorial and reference implementation.
- Added a forward-mode engine to compare the performance of forward propagation vs. backpropagation, showing nearly a 100× speedup.

Keras OpenVINO Contribution GitHub PR #20982 | *Open Source, Python, Keras, OpenVINO*

- Implemented support for `numpy.dot` in Keras' OpenVINO backend.
- Authored and merged PR #20982, improving compatibility and model execution performance.

Cars Model Classification GitHub | *Deep learning, Fine-tuning, MobelNetV2 model*

- Fine-tuned MobileNetV2 on Stanford Cars dataset (16k+ images, 196 classes).
- Achieved 86% test accuracy; explored transfer learning for large-scale classification.

Honors & Awards

• **NASA Space Apps Cairo Local Winner & Global Nominee**

Oct, 2024

• **4th Place – Undergraduate Engineering Mathematics Research Forum**

Dec 2024

Cairo University – Technical Center for Career Development (TCCD)

Certificates & Courses

• **AWS Educate Machine Learning Foundations**

Jun, 2025

• **Introducing Generative AI with AWS**

May, 2025

• **Advanced Learning Algorithms**

Dec 20, 2024

• **Supervised Machine Learning: Regression and Classification**

Aug 8, 2024

• **Intermediate Python**

Apr 6, 2024