Alaqsa Akbar

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EDUCATION

King Fahd University of Petroleum and Minerals (KFUPM), Dhahran, Saudi Arabia — Sep 2022 – May 2026
Bachelor of Engineering in Computer Engineering — GPA: 3.95/4.00

Georgia Institute of Technology, Atlanta, GA, United States — Aug 2024 – Jan 2025
Exchange student in Computer Engineering — GPA: 4.0

Oxford University, Oxford, United Kingdom — Jul 2024 – Aug 2024
Summer Program in Advanced Artificial Intelligence — Grade: A

RELEVANT TECHNICAL SKILLS/COURSEWORK

Computing Languages and Technologies – Python, Java, C/C++, Lua, Verilog, MATLAB, R, Git, Windows, Linux / Unix

Machine Learning Libraries and Frameworks – PyTorch, Tensorflow, HuggingFace, LangChain, Numpy, Pandas, Matplotlib

Coursework – NLP, Deep Unsupervised Learning, Computer Vision, Deep Learning, Data Science, Computer Architecture, Data Structures and Algorithms, Object Oriented Programming, Embedded Systems, Computer Networks, CUDA in C/C++,

WORK EXPERIENCE

Georgia Tech OLIVES Lab, Atlanta, GA, United States – *Research Assistant* — Sep 2024 – Present
- Worked in Professor Ghassan AlRegib's OLIVES lab on AI research to diagnose optical diseases
- Responsible for managing a large dataset: organizing, documenting, and uploading to HuggingFace
- Evaluated the performance of different models on the dataset

SDAIA-KFUPM Joint Research Center for AI, Dhahran, Saudi Arabia — *Researcher* — Feb 2024 – Aug 2024
- Worked with Dr. Abduljabbar Siddiqui on his research on Adversarial Patch Attacks on Object Detectors
- Researched image augmentation techniques and utilized OpenCV to simulate rain onto images
- Evaluated the performance of different defense mechanisms against several possible vulnerabilities
- Created a data pipeline to generate a dataset in real time throughout the model training phase
- Modified an adversarial attack library (Adversarial Robustness Toolbox) to train a customized adversarial patch attack model robust against adverse weather conditions such as rain by utilizing a project gradient descent (PGD) algorithm

King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia — *Course Grader* — Jan 2024 – Jul 2024
- Responsible for grading lab assignments for students in KFUPM's Object Oriented Programming course
- Responsible for grading homework assignments for students in KFUPM's Intro to Programming in Python and C course

PROJECTS

BreachSeek: A Multi-Agent Automated Penetration Tester — Aug 2024 – Sep 2024
- Worked with a team and created a final poster and paper presented at a conference in KAUST
- Created a custom graph-based architecture through LangGraph and LangChain
- Utilized LLMs including Llama 3.1 and Claude 3.5 with access to tools including bash and python script execution
- Ran on a Docker image hosted on RunPod to run Llama 3.1 on an A100 GPU

CPU Design and Implementation — April 2024 – May 2024
- Designed and implemented a fully pipelined processor with all hazards accounted for in Logisim
- Designed and implemented an instruction set architecture (ISA) with 30 instructions
- Documented the entire work in a final report

EXTRA-CURRICULARS

KAUST Academy, Thuwal, Saudi Arabia & Oxford, United Kingdom – *Participant* — Jan 2024 – Aug 2024
- A program that trains students in Artificial Intelligence for a total of 120+ hours across different stages in the year
- Chosen as one of 15 students from over 7000 applicants to attend summer courses at Oxford University
- Took courses on Deep Learning, Computer Vision, Natural Language Processing, and Deep Unsupervised Learning
- Hands on and practical experience using PyTorch with models such as Neural Networks, CNNs, UNets, Object Detectors, RNNs, GRUs, LSTMs, Transformers, VAEs, GANs, Diffusion Models, and more

Imaar, Dammam, Saudi Arabia – *Volunteer* — Feb 2024
- An initiative to repair and clean houses for people who cannot afford it
- Spent a total of 10+ hours volunteering at a government funded apartment for the needy

Saudi Mathematics Olympiad Team, Thuwal, Saudi Arabia – *Member* — 2017 – 2019
- Took 500+ hours of intensive mathematical training at King Abdullah University of Science and Technology
- Represented Saudi Arabia at the Junior Balkan Mathematical Olympiad in Cyprus where Saudi Arabia got 3rd

ADDITONAL SKILLS AND INTERESTS

Languages: Bilingual in Arabic and English (114 TOEFL)
Interests: Soccer; Badminton; Video Games