OSAMA DABBOUSI

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EDUCATION

King Abdullah University of Science and Technology (KAUST) — **Thuwal, Saudi Arabia**
Master of Science in Computer Science — *Expected May 2026*

Boston University, BU Faculty of Computing & Data Science — **Boston, MA**
Bachelor of Science in Data Science; **Summa Cum Laude** — May 2024

Relevant Coursework: High Performance Computing; Numerical Linear Algebra; Concurrency; Digital Design & Computer Architecture.
Research Interests: High-Performance Computing, Parallel Algorithms, GPU Architectures, Scientific Simulation.

HONORS & AWARDS

BU College of Computing and Data Science (CDS) Academic Excellence Award — May 2024

- Recognized as the top undergraduate student at the College of Computing and Data Science for outstanding academic performance, leadership, and collaboration skills.

KAUST Gifted Student Program Scholarship (KGSP) — February 2020

- Fully funded, merit-based scholarship awarded by King Abdullah University of Science and Technology to top Saudi students for undergraduate study at leading global universities.

RESEARCH EXPERIENCE

Advanced Algorithms and Numerical Simulation Lab - KAUST — Thuwal, Saudi Arabia
Advisor: Prof. Parsani. Research on GPU-accelerated simulation for large-scale acoustic modeling — October 2024-present

- Designed a multi-GPU acoustic framework achieving ~10× speed-up over a serial baseline through fine-grained domain partitioning, asynchronous kernel scheduling, and communication–computation overlap.
- Investigated algorithmic strategies for load balancing and spatial data locality to improve scalability across distributed GPUs.
- Contributed to the porting of an in-house CFD solver from CPU to GPU, focusing on memory-hierarchy optimization, cache-optimized data layouts, and coalesced spatial access to maximize throughput.

Machine Learning Research Group - BU — Boston, MA
Advisor: Prof. Kon. Research on automated and distributed meta-learning for cancer classification — September 2023 – August 2024

- Collaborated with a team of 8 researchers in the creation of a meta-learning pipeline capable of selecting between dozens of training configurations for the task of cancer classification.
- Implemented cloud-based model training leveraging a distributed multi-node system using SSH protocols.
- Created modules that interfaced with the larger pipeline, which were used for data augmentation, feature extraction, and model training.

WORK EXPERIENCE

Boston University / KAUST
Teaching Assistant — January 2023 - Present
Intro to Algorithms, Natural Language Processing, Probability & Statistics and Numerical Linear Algebra

- Taught classes of 10-20 students
- provided detailed feedback to enhance students' grasp of advanced concepts in discussion and office hours.

Aramco Americas — Boston, MA
Data Science Intern — June - August 2023

- Produced a retrieval-augmented generation (RAG) pipeline capable of querying thousands of academic articles for well-cited and accurate answers to user questions.
- Designed interface that leverages LLMs to answer questions using cited excerpts of relevant academic texts.
- Launched a user-friendly web application, enabling company employees to seamlessly access the pipeline.

PATENTS

- U.S. Patent No. US-20250078472-A1 – "Automated Methods for Generating Labeled Benchmark Data Set of Geological Thin-Section Images for Machine Learning and Geospatial Analysis." Granted 2025.

SKILLS

Languages: English (fluent), Arabic (fluent)
Programming Languages: Python, C++, SQL, CUDA
Frameworks: PyTorch, Git, Linux, OpenMP