Aqib Mahfuz

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EDUCATION

University of Oxford — **September 2024**
Master of Science in Advanced Computer Science — *Oxford, England*
- **GPA**: 4.00/4.00 (Distinction)
- **Research Projects:**
  * *Extending Perfectly Secure Steganography to Generative Diffusion Models* (Dissertation, exp. ICLR publication)
  * Analysis and Optimization of Readouts for Learning Classifiers on Multi-Relational Graphs (report) (code)
  * Variational Continual Learning with Laplacian Approximation Families (report) (code)
  * Improving Temporal Graph Networks via Learnable Aggregation (report) (code)
  * Enhancing Classical Quantum Circuit Simulation via Partial Stabilizer Decomposition (report) (code)
  * Diagrammatic Quantum Solution for Linear Systems (report)

Duke University — **May 2023**
Bachelor of Science in Computer Science and *Mathematics (Double Major)* — *Durham, North Carolina*
- **GPA**: 3.98/4.00 (in majors)

TECHNICAL SKILLS

Languages: *Python, Java, JavaScript, Ruby,* C/C++, C#, Haskell, SQL, Rust, PHP, R, M, MIPS Assembly
Frameworks: *Pytorch, Pandas, React, Node.js, Material-UI,* GraphQL, TensorFlow, Keras, JUnit
Developer Tools: *Git, Docker, Jupyter, VS Code,* CircleCI, IntelliJ, PyCharm, Colab

EXPERIENCE

Duke University — **Jan. 2021 – May 2023**
Teaching Assistant — *Durham, North Carolina*
- **Courses:** Computer Vision (Graduate Level), Design and Analysis of Algorithms, Discrete Mathematics
- Led recitation sections and held weekly office hours
- Graded 200+ assignments each week for three of the largest on-campus classes

Meta — **Summer 2022**
Research Intern — *Menlo Park, California*
- Collaborated on Droidlet, a research project to build "a one-stop shop for modular, intelligent agents" (i.e. robots)
- Created real-time AI interaction tool to visualize agent memory state and provide ability to edit tags on the fly
- Worked with cross-functional AR/XR teams to maximize compatibility of Droidlet agents with other platforms
- Optimized agent-to-dashboard pipeline communication for enhanced human interactability and live metric analysis

Facebook — **Summer 2021**
Software Engineering Intern — *Remote*
- Designed new fraud detection immunity framework, reducing weekly losses by $1+ million across millions of users
- Utilized GraphQL, Thrift, and proprietary programming languages (Haskell/PHP dialects) for immediate impact
- Refactored swaths of low-level code for improved efficiency and mitigated security risks to meet rising standards

PROJECTS

GryZX | *C++, CUDA, Python, Rust, Linux*
- Developer for novel quantum simulation software utilizing GPUs for accelerated ZX-diagram simplification
- Designed to implement most features of PyZX and QuiZX libraries, with optimizations for especially large circuits

Food Devil | *Python, TypeScript, React, Node.js, MongoDB, Git*
- Created crowd-sourced review website designed for students dining at various eateries across Duke's campus
- Implemented several requested features, including diet tracking, meal recommendations, and a campus-wide feed
- Incorporated a complete nutritional database of all offered options at each venue