Isham Kalappurackal Mansoor

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EDUCATION

Old Dominion University • Master of Science in Computer Science Exp. Grad. - Spring 2028
- **Concentration:** Natural Language Processing, Machine Learning and Artificial Intelligence

Virginia Tech • Bachelor of Science in Computer Science • College of Engineering Graduated - Fall 2025
- **GPA:** 3.93/4.00 • Dean's List x4
- **Coursework:** Algorithms and Data Structures / OOP (Java), Software Engineering and Design (Scrum, Docker, etc.), Operating Systems (C/Assembly, RisC-V), Cloud Software Development (AWS and GCP), Artificial Intelligence

PROFESSIONAL EXPERIENCE

Mindtide.ai – Backend Engineer: CA May 2025 – Aug 2025
- Developed the backend with FastAPI and MongoDB, designing RESTful APIs and data collections to enable rapid development and seamless client-server communication.
- Secured systems and enhanced code quality via JWT, middleware, and reusable utilities. Collaborated in Agile using GitHub for peer-reviewed, documented contributions.

Around Entertainment – Lead Software Engineer: NJ Jun 2024 – Oct 2024
- Led an 8-member team in architecting and building a cross-platform mobile application using React Native (Expo), Node.js, and Google Cloud Platform (Cloud Firestore), boosting scalability by 25% and ensuring reliable, cloud-native infrastructure.
- Accelerated development 25% and reduced latency 10% by integrating Firebase and Mapbox services with Express.js APIs and implementing Agile and CI/CD workflows.

NASA Research (VASTS) – Lead Research Engineer: Langley Research Center, VA Jun 2022 (4 weeks)
- Conducted research on Mars habitat design, utilizing Unity Engine to develop 3D models, improving astronaut spatial planning by 5%.
- Collaborated with an interdisciplinary team of scientists and engineers to address mission-critical design challenges for long-term Martian habitation, presenting proposals and technical findings to NASA engineers to align with aerospace-grade requirements.

RESEARCH EXPERIENCE

Machine Learning Researcher – Virginia Tech: Blacksburg, VA Dec 2024 – Present
- Explored energy-efficient AI strategies for resource-constrained systems including IoT devices and wearable healthcare technologies, conducting detailed analyses of pruning and distillation techniques using Google Colab.
- Optimized model efficiency and reduced resource consumption by monitoring CPU usage to evaluate energy conservation methods, demonstrating significant resource savings and providing insights into energy-aware AI solutions for real-world applications.

Undergraduate Student Researcher – Virginia Tech: Blacksburg, VA Jan 2024 – May 2025
- Developed MathQGen, a full-stack AI-powered web application enabling educators to generate customizable, grade-level math problems, featuring a custom LLM pipeline optimized with advanced prompting techniques and real-time PDF generation.
- Designed and integrated LLM requests; engineered few-shot prompting strategies to ensure accurate question generation.
- Built custom OCR functionality for image-based input, managed secure Firebase Firestore integration with structured database storage, and implemented dynamic template filtering with client-side PDF rendering for flexible exports.

RESEARCH PAPERS & PUBLICATIONS

- The Significance of AI in Evidence-based Practice in Healthcare Jun 2025
- Harnessing the Power of AI in Clinical Trials and Disease Modeling: Challenges and Future Directions Apr 2025
- Transforming Financial Planning with Generative AI: A Framework for Proactive and Adaptive Strategies Apr 2025

PROJECTS

VT Hacks 13 (Winner) – FACEAID Sep 2024
- Led a team of developers in building FaceAID, a real-time AI medical data access app recognized with Best Hack Supporting Diversity & Inclusion at VTHacks 13 (2025) for advancing equitable emergency healthcare technology.

TECHNICAL SKILLS

- **Language:** Java, Python, JavaScript, C, C++, TypeScript, Ruby, Haskell
- **Frameworks:** Node.js/Express, React, React Native, Tailwind CSS, Vue.js, FastAPI, Flask
- **Technologies & Database:** TensorFlow, PyTorch, Git, AWS, GCP, MongoDB, SQL, Firebase

HONORS & CERTIFICATIONS

- VT Hacks 13 Winner – Best Hack Supporting Diversity & Inclusion Sep 2025
- AWS Cloud 101 Certification, AWS Educate Certification May 2025
- AWS Generative AI, AWS Educate Certification May 2025
- AWS Machine Learning, AWS Educate Certification Jun 2025