FAISAL MOHAMMAD

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EXPERIENCE

Johns Hopkins University Applied Physics Laboratory — Laurel, MD
Senior Machine Learning Engineer — Jan 2019 – Present

- Trained and fine-tuned classification, detection, and segmentation models in PyTorch on EO/IR and sonar imagery, optimized them with TensorRT/CUDA for real-time inference on NVIDIA Jetson, and readied them for deployment on UAVs and USVs at sponsor demonstrations.
- Pursued a Ph.D. through APL's part-time study program while working full time, publishing first-author papers at respected computer vision venues on image-based retrieval and model reliance auditing (WACV 2027).
- Serve as the point of contact for deep learning model selection, training, and deployment strategy across multiple maritime perception programs, and delegate and oversee tasks for interns and junior engineers.
- Coordinated with external vendors to produce annotated maritime datasets, enforced metric-based quality checks on delivered labels, and designed sparse-frame extraction that distilled over 10 TB of video into training sets.
- Adopt LLM-driven agentic workflows to speed up data processing and cleaning when consolidating in-house datasets with open-source perception imagery.
- Worked across dozens of cross-functional teams and projects, partnering with external data vendors on data needs and with government sponsors to scope and test new ideas.

Northrop Grumman — San Diego, CA
Machine Learning Engineer — May 2017 – Jan 2019

- Led my software team's AI/ML initiative and implemented the first deep learning approach in its SAR automatic target recognition system, which became the new standard; brought engineers and interns up to speed on it.
- Trained convolutional networks in Keras/TensorFlow on 30,000+ in-house SAR images and integrated the models into the C++/Java target recognition system for deployment.
- Developed reinforcement-learning and combinatorial-optimization solvers (policy-gradient methods, Q-learning, simulated annealing) for weapon–target assignment and multi-vehicle scheduling.

TD Ameritrade — Jersey City, NJ
Software Engineer Intern — May 2016 – Aug 2016

- Programmed a tvOS application prototype. Utilized company's API in order to pull trading account information and market data for parsing and insertion onto the user interface.
- Co-engineered a mock-server by creating an HTTP proxy server using NodeJS in order to speed up Android application testing.

SELECTED PUBLICATIONS (FIRST AUTHOR)

- HullProbe: Measuring Interventional Part Reliance in Maritime Vessel Classifiers. *WACV 2027*.
- SEALECT: Scene-Conditioned Pose Priors for Plausible Maritime Vessel Retrieval. *WACV 2027*.
- Shift-Reliance Alignment: Ranking Vision–Language Models by the Cues They Trust. *arXiv 2026*.
- Co-authored three earlier journal papers in ocular biomechanics as an undergraduate at Rutgers (2015–2017).

EDUCATION

Ph.D. in Computer Science, University of Maryland, Baltimore County — 2020 – 2027
M.S. in Electrical & Computer Engineering, Rutgers University — 2015 – 2017
B.A. in Physics, Rutgers University — 2011 – 2015

SKILLS

Tools & Languages Claude Code, OpenAI Codex, Python, C/C++, C#, Java, Docker, Git, Bash/Linux
Frameworks PyTorch, Hugging Face, TensorFlow/Keras, CUDA, TensorRT, OpenCV, scikit-learn, NumPy, pandas