Jack Douglas

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Education

University of Waterloo — Waterloo, ON

Bachelor of Software Engineering, Artificial Intelligence Specialization — *September 2019 – May 2024*

- Average: 92% - 4 x Term Distinction List - Recipient of the President's Scholarship of Distinction

Technical Skills

Languages: C/C++, Python, Java, Kotlin, Solidity, JavaScript, TypeScript, SQL, MATLAB, Bash, R
Libraries: TensorFlow, Keras, PyTorch, scikit-learn, OpenCV, NumPy, pandas
Frameworks: Kubernetes, Docker, gRPC, Amazon Voice Services (AVS), AWS, Azure, JUnit

Experience

Apple — Cupertino, CA

Incoming AI/ML Intern — *January 2023 – April 2023*

- Creating pipelines, optimizing tools, and improving automation on Apple's machine learning platform for Siri

NVIDIA — Santa Clara, CA

Autonomous Vehicles Software Engineering Intern — *May 2022 – September 2022*

- Developed and scaled a user management system for the in-car voice assistant from driver to all passengers using microphone beamforming in **Python** and **gRPC**; to be used in NVIDIA partner vehicles such as Mercedes-Benz
- Created a multi-assistant system with wake word detection used for fulfilling context-dependent queries using **AVS**
- Designed a pipeline which extracts car manual data used for training voice assistant models using **Pytesseract**

BitGo — Palo Alto, CA

Software Engineering Intern — *September 2021 – December 2021*

- Created an internal tool for asynchronously comparing data stores of blockchain indexers using **JavaScript** and **TypeScript**, and used the tool on **+100,000** indexed Ethereum blocks
- Designed a new approach in **Java** and **Kubernetes** for indexing and storing Ethereum blocks using event logs and opcode traces that corrects data inaccuracies caused by previously uncaptured internal transactions
- Fixed bugs in the migration of a wallet object that were responsible for **∼24,000** dropped transactions

BlackBerry — Mississauga, ON

Research and Software Developer — *January 2021 – April 2021*

- Created a thread manager in **C++** to resolve the producer-consumer synchronization problem between microservices on the intelligent vehicle data platform
- Trained CNN models for facial verification in **TensorFlow** and **Python**, with **Keras** for hyper-parameter tuning, which achieved **86%** verification accuracy

Research / Leadership

Undergraduate Research Assistant

Machine Learning Researcher (Professor: Gautam Kamath) — *May 2022 – Present*

- Researching how data poisoning and camouflage sets can be used for adversarial machine unlearning attacks on image classifiers using **PyTorch** and **Keras** (accepted to Trustworthy/Socially Responsible ML at NeurIPS 2022)

UWaterloo Data Science Club

President (January 2022 - August 2022), Lecturer — *September 2020 – Present*

- Designed and presented workshops to hundreds of club members about neural networks with **TensorFlow**, recommender systems and clustering techniques with **scikit-learn**, and data analysis with **NumPy** and **pandas**
- Led 25+ execs and 6 sub-teams in organizing weekly educational workshops, industry events, and research panels

WATonomous

Path Planning Core Member (Autonomous Vehicle Research) — *June 2021 – December 2021*

- Improved the mAP of the 3D-RetinaNet baseline for action class detection on low-instance classes by using denser data augmentation and the focal loss cost function with **PyTorch** in **Docker** environments