Jim Aldon D'Souza

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Experience

End-to-end Autonomous Freight

Sr. Engineering Manager **Torc Robotics**
Mar '24 – Present Montreal, Canada

- Built, scaled, and currently manage 3 specialized ML teams from ground up for motion forecasting & planning
- Drove 65% faster autonomy development and 40% reduction in dis-engagements compared to rule-based basline
- Architected petabyte-scale ML infrastructure enabling bi-weekly model iterations, unlocking critical autonomous capabilities 3x faster than traditional development cycles
- Established & manage 3rd ML team this year to develop a single end-to-end pixel-to-plan model, poised to supersede the entire autonomy stack at Torc
- Total reporting: 23 ML, robotics, and software engineers.

Staff ML Engineer
Feb '23 – Mar '24

- Pioneered migration from classical motion prediction to transformer-based ML approach, achieving 70% reduction in missed behaviours and 7x improvement in long-horizon (8-10s) forecasting accuracy at highway speeds
- Architected hybrid ML planning pipeline combining learned behaviors with safety-constrained optimization, reducing average planning latency from 100ms to 45ms while maintaining ASIL-B safety compliance

C++11/14 | Python3 | AWS | ROS 2 | Docker | Nvidia AGX Orin

Full-Stack Autonomous Driving

Team Lead & Eng. Manager **Algolux**
Nov '19 – Jan '23 Montreal, Canada

- Hired & led a team of 4-person PhD/MSc robotics team to build a complete autonomy stack, with vehicle integration
- Developed perception, SLAM, prediction, planning, control software that culminated in the company's first self-driving product: hands-free driving at 100km/h
- Published at top AI conferences (CVPR 2023, ICLR 2022 Spotlight) advancing multimodal perception and interactive prediction for autonomous driving

Sr. Software Engineer
Sep '18 – Oct '19

- Designed real-time multi-sensor calibration system for monitoring extrinsic drift in safety-critical perception
- Led Tesla Autopilot competetive analysis, providing crucial insights for internal development strategy

C++11/14 | Python3 | ROS 1/2 | Docker | PyTorch | TensorRT

ML-Based Localization with HD-Maps

Sr. Software Engineer **TomTom**
Apr '17 – Aug '18 Amsterdam, Netherlands

- Pioneered company's first ML-based multimodal localization system achieving cm-level accuracy at 130 km/h, integrating camera, IMU, GNSS data on Nvidia Drive PX2.
- Led cross-functional project across Amsterdam and Eindhoven to optimize semantic segmentation models for embedded deployment, reducing inference time by 60% and pioneering ML integration into production localization
- Implemented particle filter-based sensor fusion combining neural networks with HD-maps and geo-inertial data

C++11/14 | Python3 | TensorFlow | ROS | TensorRT | RTMaps

High-Precision Industrial Metrology Systems

System Software Engineer **Nikon**
Sep '16 – Mar '17 Leuven, Belgium
Developed high-performance pipelines for industrial metrology laser scanners using latency-critical C++ code

C++11/14 | PCL | MSVC | microsoft/GSL

Autonomous Planetary Navigation Systems

Robotics Researcher **DFKI**
Jan '16 – Aug '16 Bremen, Germany

- Published thesis on lidar navigation in feature and global positioning denied spaces by autonomous rovers in lunar and planetary exploration missions as part of a project funded by the German Aerospace Center DLR
- Designed a SLAM algorithm with scan matching frontend and a graph optimization backend that's aided by arbitrarily deployed environment modifiers. In addition to reducing scene ambiguity, it improved data association, enabling loop closure and higher accuracy positioning.

C++11 | Python3 | g2o | PCL | OpenCV | ROS | Rock RTOS

Vision-Based Autonomous Navigation

Software Engineer **Rovsing**
Apr '15 – Apr '16 Skovlunde, Denmark

- Built camera+IMU state estimation that ran on Nvidia Tegra X1 for navigation in GNSS-denied environments using visual features and extended kalman filter (EKF) SLAM
- Deployed the software for use by two different customers: Daimler in underground parking garages and the Danish military in urban warfare

C++11 | Python3 | CUDA | Magma | Eigen3 | Qt

Education

MSc	Computer Control & Automation	
	NTU, Singapore	
MSc	Robotics Innovation Center	
Thesis	DFKI Bremen, Germany	
MSc	Electrical Engineering	
	DTU, Denmark	
BTech	Electrical & Electronics Engineering	
	NITK Surathkal, India	