TAREK DEEK

Avionics & Embedded Software Engineer · Co-Founder
Montreal, Canada · **US & Canadian Citizen** · Bilingual English / French
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Avionics software engineer at CAE owning the company's most complex cross-fleet escalations — coordinating Team Leads, SMEs, and Airbus to resolution. Embedded C/C++ and black-box fault isolation on real-time avionics. Two-time co-founder.

EXPERIENCE

Avionics Software Engineer — CAE Inc. — Montreal Aug 2022 – Present

– Own the most complex **cross-fleet avionics escalations** at CAE — including an A330 issue spanning six Delta NEO devices plus Air Alaska and A320 platforms — driving them from investigation to true technical resolution.
– Isolate faults through **hardware checks, ARINC bus testing, and detailed trace analysis**; correlate ARINC data, traces, and system states to narrow fault domains on A330/A350/A380 where OEM logic is black-box.
– Coordinate directly with **Comms and Avionics Team Leads and subject-matter experts** across multi-stakeholder investigations, keeping all parties aligned.
– Serve as **technical interface to Airbus** — presenting complete I/O evidence, traces, and configurations that shorten snag and DIR lead times.
– Make impact-driven engineering calls: raised a DIR early on a **100+ I/O auto-throttle malfunction** to cut customer downtime; independently solved a cabin-pressure defect **before the OEM responded**.
– Mentor and train interns to self-sufficiency; **authored the Avionics COOP onboarding documentation** and CAE Wiki process guidelines — self-initiated. Recipient of an **Empowerment Award** and CAEChampions recognition.
– Develop and debug avionics software in **C++, Python, C, FORTRAN, and Perl** across Boeing 757/767/737 MAX and Airbus platforms (ARINC 429, FMS; Honeywell, Rockwell Collins); support qualification — build preparation and snag clearance. Delivered for UPS, Cargojet, Delta, Air Alaska, SF Airlines, and CAE Aviation Training.

Co-Founder & VP — Alvia Systems Inc. 2022 – 2026

– Co-founded a startup building **climate risk-assessment tools**; closed the first enterprise contract, with **Valero**, before the company wound down. Led product development and customer/contract negotiation on a small founding team.

Co-Founder & Operations — Osprey Facilities LLC (TX) & Nonstop Fixers (MI) 2024 – 2026

– Built and ran two facility-management businesses **from zero**: client acquisition, business/tax setup, insurance, bookkeeping, worker dispatching, and all web/branding.

EDUCATION

B.Eng., Computer Engineering — Concordia University — Montreal 2022

– First Place, Electrical & Computer Engineering Capstone Project (Winter 2021).
– Concordia Innovation Fund award — $60,000 project grant.

RELEVANT PROJECTS

Autonomous Rover — Team Lead — SAE Concordia 2022

– Led a multidisciplinary team building autonomous rovers on Nvidia Jetson; built the motor/PWM actuation layer and **migrated the nav stack from an immature SDK to ROS** for reliable LiDAR/IMU/GPS localization.

Real-Time Systems & UAV Control — C++ / QNX Neutrino 2021 – 2022

– Built C++ socket/HID comms on **QNX Neutrino (RTOS)** to control a quadrotor UAV; implemented a real-time vehicle-health monitoring system with multithreading and interrupt handling.

SKILLS

Languages: C++, Python, C, FORTRAN, Perl
Avionics & Systems: avionics integration & validation, ARINC 429, FMS, RTOS (QNX Neutrino), electronics troubleshooting, qualification & build preparation, defect root-cause analysis
Test & Hardware: test automation (Python), black-box debugging, HW/SW & sensor integration (LiDAR/IMU/GPS), CAD & 3D printing
Tools: Visual Studio, Git, Jira, Linux, Windows, Scrum/Agile
Business / Operations: founder experience, client acquisition, operations, bookkeeping, branding & web
Clearance & Languages: Canadian & US citizen; eligible for NATO clearance, Controlled Goods Program (CGP) and ITAR. Fluent English & French, intermediate Arabic.