Najmus Ibrahim

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EDUCATION

UNIVERSITY OF TORONTO
Aerospace Engineering
MASc, BASc | Toronto, Canada
Astrodynamics, Control, Estimation
Optimization, Spacecraft Dynamics

UNIVERSITY OF TORONTO
Computer Science
Supplementary Graduate Studies
Machine Learning (AI), Deep Learning

TRAINING

UNIVERSITY OF OXFORD
Said Business School
Leading Strategic Projects
Strategic Project Management
Global Stakeholder Management
Complex Risk Assessment

ESA SCHOOL ON GNSS
Global Navigation Sat. Systems
Barcelona, Spain

SKILLS

LEADERSHIP
Strategy • Line Management • Contract Negotiation • Proposals • Subcontractor Management • Roadmapping • Coaching

SOFTWARE DEVELOPMENT
Over 10,000 lines:
C / C++ (17/20) • Python • Matlab • Simulink

Over 3,000 lines:
Shell (Gitlab) • SQL

Operational Expertise:
Google Cloud • Kubernetes • Docker • Terraform

ROBOTICS & SPACE
Astrodynamics • Control • Estimation • Optimization • Spacecraft Dynamics • Real-Time Control • Machine Learning • Deep Learning

LINKS

Personal: **Website**
LinkedIn:// **najmusibrahim**

BRIEF

Robotics, Space and Defence leader with over 17+ years of experience delivering R&D and commercialized software and hardware, with a strong focus on proven trajectory tracking systems for the space and self-driving sectors. The foundational spacecraft GNC systems I've architected have been commercialized over 50 times for the Kepler Communications, GHGSat and Hawkeye 360 constellations. Presently at Oxa, I remotely lead the Verification & Validation team to reduce inefficiencies, integrate new capabilities and accelerate the business's growth strategies through cloud scaling.

EXPERIENCE

OXA | Staff Engineer (Motion Planning)
Autonomous Vehicles (AVs) | Feb 2020 – Present | Toronto, Canada

- Remotely led and managed the Europe-based Verification and Validation (V&V) team delivering robust and long-standing solutions for scaling AV technology.
- Defined the company's self-driving V&V strategy, including KPIs, philosophy, continuous integration/deployment (CI/CD) and on-road test plans.
- Set technical roadmap and drove test procedures for new V&V processes.
- Architected C++ metrics interface and implemented autonomy KPIs to serve as the de facto source of internal and external stakeholder reporting.
- Re-architected cloud orchestration of developer CI/CD using Google Kubernetes Engine to deliver 1000s of daily tests at scale.
- Guided VP/Head of Engineering and Principal Engineers to lead long-term V&V growth strategy for operations streamlining.

SPACE FLIGHT LABORATORY | Lead Engineer (GNC)
Space & Defence | Jan 2010 – Jan 2020 | Toronto, Canada

- Architected GNC system for science, communication and military applications to (2σ) accuracies of $5''$ (knowledge) and $18'$ (pointing), respectively. Implemented navigation systems using GPS receivers, optical sensors, magnetometers and gyroscopes to (2σ) knowledge accuracies of 10 km in satellite position and $4'$ in satellite orientation.
- Flight qualification, military (ITAR) to space qualification (TRL-1 to TRL-8), C/C++ flight code, hardware calibration, software-in-the-loop simulations, hardware-in-the-loop testing and on-orbit command-and-control for data inferencing, planning and real-time imaging of the Earth.
- Requirements traceability, subcontractor management, proposal writing

SELECTED CONFERENCE PUBLICATIONS

DMSat-1: Next Gen. Environmental Monitoring	4S Symposium	Italy
In-Orbit GNC Experiences of GHGSat-D	ESA GNC	Austria
Design of NEMO-AM AOCS	ESA GNC	Portugal
NEMO-AM Autonomous Naonsatellite for EO	4S Symposium	Spain

JOURNALS AND BOOKS

Optical Payloads for Space Missions	Chapter 40	John Wiley
Estimating Titan's Conductivity	Vol 58	Journal of Planetary & Space Science