Xuanhao (Shawn) Ong | oxuanhao@seas.upenn.edu / oxuanhao@gmail.com

Driven UAV engineer with industry experience in defense technology project management, with technical competency & keen interest in autonomous systems design and multi-agent planning & control. Excellent problem-solver, confident verbal & written communicator, and avid learner. Experienced in managing complex programs with multiple stakeholders, driving digitalization for complex operational systems, and collaborating with research institutes to transition emerging technologies to operational products.

EXPERIENCE

Defence Science & Technology Agency (DSTA), Singapore

Project Manager (UAV Capabilities Digitalization) | *Jan-20 – Aug-23*

- Drove digitalization of Singapore's UAV Systems by delivering several cross-functional projects involving multiple stakeholders (UAV operators, developers/engineers, system architects, SAF/DSTA senior management, Ministry principals)
- Specialized in areas such as human factors engineering & human-machine interfaces, digitalization of UAV operations & maintenance, end-to-end cybersecurity protection suites
- Performed benefit (national strategic objectives, operational need, knowledge build-up) – risk (technical, costs, schedule, opportunity costs) analysis to secure funding for several multi-million UAV acquisition and development projects

Project Manager (Aerospace Research Collaborations) (Concurrent) | *Apr-21 – Aug-23*

- Led DSTA's collaborations with research institutes such as Agency for Science, Technology and Research (A*STAR) to leverage commercial research for potential defense use
- Engaged stakeholders and users of the SAF and bridged the gap with R&D entities to transition low tech-readiness projects into operational systems
- Seeded multiple projects in emerging tech areas: AI robustness assessment framework, computer vision for aircraft surface defects detection, federated & incremental learning with privacy-preserving features, performance prediction of additive manufactured parts, LiFi for outdoor long-range communications, ultrasonic direct-write structural-monitoring sensors on helicopters

Engineer/ Senior Engineer (UAV Innovation and Avionics) | *Oct-18 – Jan-20*

- Developed decision support systems & tools for drone swarms, including collaborative target search, swarm path planning, and auto mission-support functions
- Enhanced productivity of several workstreams by implementing innovative tools, such as a modified tech-scan prototype to auto-web-extract UAV articles and a data visualization dashboard using Qlik Sense for analyzing satellite launch trends
- Managed avionics development of complex large-scale UAV system; enhanced the Human-Machine Interface for Ground Control System, improved software quality for safety-/mission-critical modules, enhanced fidelity of software logic & simulation models in Hardware-in-the-Loop simulators

Defence Science Organisation (DSO) National Laboratories, Singapore

Member of Technical Staff (VTOL Hybrid UAV Systems) | *Jun 17 – Oct 18*

- Developed & operationalized Vertical Take-off & Landing (VTOL) Hybrid UAV Systems, focusing on electronics integration, mechanical design & flight trial operations

Singapore Armed Forces (SAF) (Reservist) – HQ 1743 Singapore Armoured Regiment

Battalion Chief Operations Officer | *Sep 22 – Present*

- Led the planning and execution of overall operations and training for a Leopard 2SG tank battalion (~600 men) for annual local/overseas reservist training; responsible for general administration, manpower deployment, personnel development, welfare, and logistics

Company Officer-in-Command | *Jun 17 – Sep 22*

- Led a Leopard 2SG tank company (~70 men) in multiple local/overseas military exercises, involving strategic planning with upper military echelons, with tactical real-time decision-making in situations of high pressure & uncertainty

EDUCATION

Master of Science in Engineering (M.S.E) in Robotics
University of Pennsylvania, Aug-23 - May-25

- **2023 Inaugural Engineering Entrepreneurship Fellow**: 1 of 12 students selected for a work-study program in technology venture leadership

Master of Science (M.Sc.) in Management Science & Engineering
Stanford University, Sep-16 - Jun-17
GPA: 3.98

- Specialized in Decision and Risk Analysis: adept in problem analysis and probabilistic decision modelling

Bachelor of Science (B.S.) in Aerospace Engineering
University of Illinois at Urbana-Champaign, Aug 13 - May 16
GPA: 3.98

- Focused in Systems Engineering
- Edmund J. James Scholar Honors Program
- College of Engineering Dean's List

SKILLS

TECHNICAL:
Programming: Python, Julia, Matlab, Octave, R;
Data Visualization: Qlik Sense;
Computer-Aided Design: Solidworks, NX, Inventor;
Additive Manufacturing: FDM

SOFT SKILLS: Leadership, Teamwork, R&D Project Management, Critical and Analytical Thinking

LANGUAGES: Native fluent in English and Chinese (Mandarin)

CERTIFICATIONS

Certified Scrum Product Owner, *by Scrum Alliance*

Design Innovation Practitioner, *by Singapore University of Technology & Development*

FAA Certified Private Pilot