

Experience

European Space Agency (ESA)

Paris, FR

Project Engineer, Emerging Technologies

April 2024 – Present

- Technical Officer of 9 ongoing space technology R&D activities, managing 16 contractors to mature emerging digital technologies (e.g. AI/ML, sensor fusion, digital twins) across Modelling & Simulation, Manufacturing and Embodied AI for launch vehicles and space-tugs – as part of the *ESA Future Space Transportation Programme*
- Architected *700kEUR system study* to mature on-board AI, avionics, GNC and communication technologies for mission autonomy of space-tugs and orbital propellant depots via system analysis of in-space logistics missions
- Managed the upgrade of shot-peen forming and friction stir welding processes with new AI/ML, data-streaming and non-destructive inspection technologies at MT-Aerospace sites, improving Ariane 6 serial production costs
- Negotiated 7 technology development contracts across a variety of stakeholders (e.g. primes, subcos, research institutes, intra-agency), analysing cost, timelines, reporting and interface requirements on key technical topics
- Designed a carbon fibre composite manufacturing modernisation activity through system analysis of new in-line sensors, multi-modal sensor fusion and ML-based anomaly detection technologies to reduce recurring costs
- Developed the 'software-centered' technology roadmap for space transportation via scouting key cross-industry 'software for hardware' trends and shaping EU industry approach through presentations, events and workshops
- Evaluated 20+ technical proposals via the agency procurement process, analysing technical validity, personnel competencies, management approach and regulatory compliance in-line with tender evaluation requirements

European Space Agency (ESA)

Paris, FR

YGT Systems Engineer

Oct 2022 – March 2024

- Led communication subsystem standardisation for *rendezvous and docking demonstrator of space-tugs* during phase A and B studies, converging on a common physical layer and protocol for inter-satellite communication
- Created the emerging digital technologies R&D roadmap via system analysis of technology pull from space system's design, MAIT and operation lifecycle – used to fund new *AI, sensor fusion and digital twin activities*
- Managed the development of the first simplified Lifecycle Assessment (LCA) tool for launch vehicles, *ESA GSL-ACT*, allowing non-experts to rapidly quantify, compare and optimise launcher designs and their impact
- Analysed preliminary design of an EU 'Starship' during the *European Heavy Lift Launcher* phase A studies by RFA & ArianeGroup, improving reference architectures, propulsion system selection and simplifying design

Expedia Group

London, UK

Software Engineer (1yr placement)

June 2020 – July 2021

- Led the requirement setting and architecture design of new Kafka-based data-streaming service with product, leadership and Expedia vendors – automating a previously week-long manual process into a real-time system
- Built an internal tool to answer stakeholder questions about the calculation of Expedia B2B commission rates with AWS, React and Kotlin, reducing query time to circa. 30s, a 10x decrease from previous ad hoc methods
- Designed performance benchmarking script and methodology for cloud-based 'serverless functions' to identify and reduce latency of 8 different FinTech services, improving the response time of 1,000s of client queries

Amazon

London, UK

Program Manager Intern

June 2019 – Sept 2019

- Built an internal dashboard using Python, SQL and Tableau to visualise Amazon's EU-5 cross-border delivery estimate accuracy (% accuracy of your delivery due date), automating 2hrs of daily data preparation work
- Identified 4 operational chokeholds driving delivery uncertainty from Amazon datasets, presented analysis to senior stakeholders and provided corrective actions, increasing delivery estimate accuracy by 50bps MoM

Education

University College London (UCL) – MSc Robotics & Computation

Sept 2021 – Sept 2022

University College London (UCL) – BEng Mechanical Engineering

Sept 2017 – July 2020

Skills

Bits: Python, AI/ML, Linux, AWS, C++ | Atoms: CATIA V5, ANSYS, MBSE, AM | English (Native), French (A2 Level)