

WORK EXPERIENCE

Robotics Simulation Engineer (Procedural Home Generation), Dyson 03/2024 — 09/2024

- Designed and developed a furniture selection algorithm for rooms to determine optimal quantity of furniture objects and most compatible variation of items using bin-packing and Bayesian optimisation.
- Connected graph representations of furniture items with 3D furniture models inside Unity to enable the manipulation of furniture positions and orientation with force-based constraints.
- Developed furniture rotation solutions; items could be configured to point towards or away from walls or other objects for realistic orientation in rooms.

Cloud Engineer (Platform), Dyson 09/2023 — 03/2024

- Reduced £20,000 in bills annually for Amazon Machine Image scanning by developing and deploying an alternative backup solution using AWS CloudFormation, Lambda and Step Functions.
- Implemented redundancy for production RDS databases with cross-region and cross-account backups via AWS CloudFormation, Backup, Lambda, Step Functions and EventBridge.
- Implemented monitoring for log ingestion between Logstash and OpenSearch using a Boto3 script, visualising data in Grafana and setting up CloudWatch alarms to observe log flow issues attributed to a bug.
- Conducted an independent spike to evaluate SonarQube's feasibility for cloud deployment, implementing via Docker/ECS and integrating with Azure DevOps pipelines for code quality and security analysis.

SELECTED PROJECTS

Sensor-Invariant Grasp Stability Prediction Model (Master's Thesis) - [Paper](#), [GitHub](#) 09/2025 — 04/2026

- Developed a MuJoCo simulation pipeline for the ORCA hand and YCB objects, generating physically plausible grasps via energy-based simulated annealing for gravity replay.
- Trained CNN, GRU, and LSTM architectures to forecast near-future grasp instability using only short temporal histories of fingertip normal and shear forces, bypassing the need for raw tactile imagery.
- Evaluated models on unseen objects to achieve 98.43% test AUPRC with a GRU baseline and isolated a 0.01s-window LSTM as an optimal low-latency solution, earning a First-Class grade (72.7%) for "exceptional" work.

Apps for the Light Phone III (No Scrolling) - [Website](#) 05/2025 — Present

- Built No Scrolling, a collection of free, open-source apps for the Light Phone III, including Luma, Passes, Weather, Echo, Reverb, Buses, Logger and Zero with Expo, React Native and Kotlin.
- Built a web dashboard for Luma with TanStack, Convex, Cloudflare and TypeScript, enabling users to configure tools and install No Scrolling apps from the browser.
- Grew the project into a recognised part of the Light Phone III modding scene, with No Scrolling referenced by Light in its [Developer Program announcement](#) and 4,200+ GitHub APK downloads across releases.

Event Scheduling based on Menstrual Cycle Predictions (Startup MVP, Seren) 02/2025 — 03/2025

- Developed predictive models for sleep, cognition, and mood by performing data cleaning, principal component analysis, UMAP, k-means clustering, synthetic dataset generation, and building random forest classifiers and regressors.
- Architected and implemented a Python backend with Flask APIs to deliver prediction and scheduling models, facilitating seamless integration with the frontend.
- Assembled a frontend in Vite and TypeScript, leveraging Shadcn and custom components to visualise user metrics, predictions, and calendar events.

Automated Clearance Measurement System for Variable Stator Vanes (Rolls-Royce) 09/2024 — 10/2024

- Developed an automated system in Python (Open3D) featuring an interactive GUI to calculate end-wall clearances for variable stator vanes, eliminating the need for manual CAD measurements.
- Engineered the core clearance computation by utilising a closest-point-on-triangle algorithm with barycentric coordinates, enabling efficient and precise distance measurement between 3D meshes.

EDUCATION

Engineering Mathematics, MEng, University of Bristol 09/2021 — 06/2026

A-Levels, Merchant Taylors' Boys School, Liverpool 09/2019 — 05/2021

Further Mathematics, Mathematics, Design & Technology, Physics: A*, A*, A*, A

EXTRAS

Languages: Python, C#, HTML, CSS, JavaScript, TypeScript, LaTeX

Frameworks: React, Expo, Astro

Environment and Tools: Neovim, AWS, Cloudflare, Git, Docker, Unity

Hobbies: Wild camping, Bouldering, Guitar, Music Production