

VANDAM DINH

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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.
 - Established 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, deployed via Docker/ECS and integrating with Azure DevOps pipelines for code quality and security analysis.

SELECTED PROJECTS

- Third-party Apps for the Light Phone III** – [Luma](#), [Passes](#), [Weather](#) 05/2025 – Present
- Delivered an Android launcher fork with Kotlin and two utility apps with React Native, Expo, and TypeScript, enabling barcode storage and real-time weather updates for users.
 - Crafted and refined custom UI components in Figma to accurately replicate LightOS, ensuring seamless integration with Light's official tools.
 - Integrated the Open-meteo API to provide real-time weather data and implemented unit conversion features, accommodating user preferences for temperature, wind speed, and precipitation.
- Event Scheduling based on Menstrual Cycle Predictions** (Startup MVP, Seren) – [Video](#) 02/2025 – 04/2025
- 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.
- Evaluating South West UK Garage Service Coverage with Simulation** (Aviva) 01/2025 – 02/2025
- Devised a discrete-event simulation in Python (SimPy, OSMnx, NetworkX) to model vehicle breakdown scenarios, using traffic-weighted Voronoi tessellation to define service areas and assess garage network efficiency.
 - Synthesised a dynamic traffic model by processing UK Department of Transport data, applying a logarithmic function to generate realistic congestion factors for network analysis.
 - Optimised garage locations via Bayesian techniques, designing a composite cost function to balance response times and service equity, with potential to cut daily drive time by 40 minutes.
- Automated Clearance Measurement System for Variable Stator Vanes** (Rolls-Royce) 09/2024 – 11/2024
- 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 2021 – 2026
- A-Levels** @ Merchant Taylors' Boys' School, Liverpool 2019 – 2021
- Further Mathematics, Mathematics, Design & Technology, Physics: A*, A*, A*, A

TECHNOLOGIES & INTERESTS

Languages: Python, C#, HTML, CSS, JavaScript, TypeScript, LaTeX
Framework/Libraries: React, Expo, Astro
Environment and Tools: Neovim, AWS, Cloudflare, Git, Docker, Unity
Hobbies: Wild camping, Boulderling, Guitar, Music Production