

# Jerell James

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18 Hawkins House, Bond Street, W5 5DF | 07915599174 | Jerell1998@gmail.com | <https://jerell.me/>

## Education

- 2022, BSc in Digital & Technology Solutions, Open University
- 2021, Foundation Degree in Data Analytics and Innovation, Open University
- 2017, 4 AS/A-Levels A\*-C, Esher College

## Experience

### SOFTWARE ENGINEER | PACE CCS | JAN 2018 - PRESENT

Research and development of engineering software for carbon capture, thermodynamics, geospatial network modelling, and internal business operations using Zig, TypeScript, C#/.NET, Julia, WebAssembly, WebGPU, and Azure.

- Geodash - *Zig, TypeScript, React, Electron, Bun, WebAssembly, WebGPU, ONNX*
  - Built a geospatial flow-network platform for constructing, querying, evaluating, and simulating directed pipeline networks.
  - Implemented a Zig/WebAssembly core for TOML network loading, hierarchical property inheritance, query execution, shapefile handling, coordinate reprojection, and OLGA .key import/export.
  - Designed GPU-accelerated steady-state simulation workflows using ONNX thermodynamic property surfaces, WebGPU compute shaders, and Zarr-backed result storage for pressure-enthalpy design-space exploration.
- [Dim](#) - *Zig*
  - Built a dimensional analysis and unit-conversion library with compile-time dimensional safety, derived-unit arithmetic, SI/Imperial/CGS registries, affine units, formatting, and a CLI expression evaluator.
  - Compiled the library to WebAssembly for browser integration, exposing unit-safe calculations to engineering applications such as Geodash.
- Phase Envelope Generator - *TypeScript, Next.js, React, WebGPU, Three.js, ONNX Runtime Web*
  - Developed an interactive thermodynamic phase-envelope and flash-calculation web application for multi-component fluid compositions.
  - Integrated ONNX Runtime Web inference for phase, density, entropy, temperature, viscosity, and related thermodynamic properties, with worker-based batch evaluation for responsive plotting.
- Timesheets - *TypeScript, React, Next.js, NestJS, Azure, Docker, Terraform, GitHub Actions*
  - Built and maintained the company-wide project, time-submission, and reporting system used by employees to record project work and generate progress/cost reports.
  - Implemented an event-sourced NestJS backend with CQRS-style commands, events, read projections, reindexing tools, Azure Table Storage, Azure AD authentication, and queue-backed projection updates.
- [Ichthys LNG Phase 2a FEED](#)
  - Optimised subsea design configurations using an evolutionary algorithm; paper presented at the BHR 19th International Conference on Multiphase Production Technology, Cannes, France, June 2019.