



PROFESSIONAL PROFILE

Applied AI and full-stack software engineer, legal-tech researcher and product founder with 8+ years of experience developing data-driven web applications, AI prototypes and visual analytics systems. PhD candidate in Computer Science at Bangor University through the UKRI Centre for Doctoral Training in Artificial Intelligence, Machine Learning and Advanced Computing (expected 2027). Hands-on across React/TypeScript, Python/FastAPI, Node.js, SQL/PostgreSQL, RAG, NLP, machine learning and human-centred product design. Led the technical delivery of EmployODR, a UK Government-funded employment-law AI prototype developed with the Solicitors Regulation Authority, Law Society and Access to Justice Foundation. Published and presented at IEEE VIS, ICAIL and Eurographics/CGVC.

£119,691 UK Government-funded legal AI project

majority technical delivery completed within six months

expert-tested with legal and advice-sector professionals



CORE EXPERTISE

LANGUAGES

Python, TypeScript, JavaScript, Java, SQL, HTML/CSS

FRONTEND & VISUALISATION

React, Next.js, D3.js, Cytoscape.js, React Flow/XFlow, Tableau, Mapbox GL, WebXR/A-Frame

BACKEND & DATA

FastAPI, Node.js, Express, REST APIs, PostgreSQL, relational data modelling, data cleaning and preprocessing

AI & MACHINE LEARNING

LLMs, OpenAI APIs, RAG, FAISS/vector search, NLP, classification, deep learning, PyTorch, TensorFlow, scikit-learn

ENGINEERING

Docker, Git, GitHub Actions, Jest, Playwright, CI/CD, Azure, AWS, technical documentation

DOMAIN & DELIVERY

Legal technology, responsible/explainable AI, HCI, user research, co-design, stakeholder workshops, product strategy



PROFESSIONAL & RESEARCH EXPERIENCE

Founder & Technical Lead | Qrapp Technology

January 2018 - Present | Mauritius & Nigeria

- Founded and lead a technology venture spanning product strategy, software delivery, business development and stakeholder partnerships.
- Translate user and commercial requirements into digital product concepts, technical roadmaps and iterative releases.
- Coordinate product development, team priorities and external relationships while maintaining hands-on involvement in technical innovation.
- Apply software engineering, data analysis and AI methods to practical business and social-impact problems.

AI Researcher / Research Assistant - Legal Technology Innovation | Bangor University | Regulators' Pioneer Fund 3

June 2024 - February 2025 | United Kingdom

- Led development of EmployODR, a web-based employment-law system that uses conversational AI to gather context and rank appropriate online dispute-resolution tools.
- Built a ReactJS front end integrated with the OpenAI API, a retrieval-augmented generation pipeline, curated legal data and a custom Python classification workflow derived from thousands of employment-law FAQs.
- Designed explainability features including dynamic node-link pathway maps, relevance-weighted relationships, contextual panels and comparative radar charts for cost, accessibility and relevance.
- Ran two in-person expert testing workshops with employment solicitors, Citizens Advice specialists, law-centre advisers and ADR practitioners; iteratively refined the UI and RAG system for accuracy, plain English and usability.
- Produced technical documentation and research outputs for a UK Government-funded £119,691 project. The Law Society later highlighted the tool's encouraging legal accuracy and low-cost access-to-justice potential.

PhD Researcher - Explainable Legal AI & Visualisation | Bangor University | UKRI CDT-AIMLAC

September 2023 - Expected 2027 | United Kingdom

- Research how visual representations, knowledge structures and AI can make legal processes more understandable, transparent and navigable.
- Develop prototypes spanning legal process exploration, explainable recommendations, knowledge graphs, RAG and visual analytics.
- Collaborate across computer science and law, translating doctrinal and policy requirements into technical models and user-centred interfaces.
- Contributed to UK policy-facing work on digital justice, responsible AI, interoperability, inclusion and access to justice.

Research Assistant - Medical Image Registration | Bangor University

2023 - 2024 | United Kingdom

- Developed a Python framework combining rigid registration and deep neural networks for 3D medical-image alignment.
- Implemented preprocessing for noise reduction and normalisation, plus evaluation using mean squared error, mutual information and target registration error.
- Managed dataset acquisition and the research lifecycle from technical design through evaluation and publication preparation.

Teaching Assistant / Demonstrator - Machine Learning & Visualisation | Bangor University

November 2023 - Present | United Kingdom

- Teach practical sessions in Machine Learning, Advanced Machine Learning, Information Visualisation and Creative Visualisation for undergraduate and postgraduate students.
- Support Python, ML and Tableau laboratories, assignments and technical troubleshooting while explaining complex concepts accessibly.

Student Ambassador, PGR Representative, Peer Guide & International Student Mentor | Bangor University

2023 - Present | United Kingdom

- Represent postgraduate researchers and support prospective, new and international students through tours, events, mentoring and feedback channels.
- Received Course Representative Awards in 2023 and 2024.



SELECTED SYSTEMS & PROJECTS

EmployODR

ReactJS, OpenAI API, Python, RAG, legal classification, interactive visualisation

- AI-assisted employment-law triage and ODR recommendation prototype with explainable pathways and ranked tool comparisons.
- Research published at ICAIL 2025 and presented as an IEEE VIS 2025 poster.

LexVizExplorer

React, TypeScript, Node/Express, embeddings, RAG, React Flow/XFlow, Jest, Playwright

- Visual legal-process explorer combining semantic and keyword selection, 50+ administrative-justice templates, flow validation and explainable guided pathways.
- Designed for reusable, user-centred legal guidance and evaluation of legal visualisations.

PoliViz

Python, FastAPI, FAISS, GPT-4, browser extension / Electron

- Privacy-policy analysis system that detects relevant clauses, retrieves source snippets and presents confidence and risk scoring for user review.
- Explores transparent AI assistance for interpreting complex policy documents.

PurePath - 24-hour Hackathon Prototype

Rapid product design, sustainability, routing, collaborative delivery

- Co-created a sustainable travel platform that recommends lower-carbon journey options; moved from wireframe to working prototype within a 24-hour university hackathon.

Immersive & Narrative Data Visualisation

JavaScript, D3.js, Mapbox GL, A-Frame/WebXR, data preprocessing

- Built interactive refugee-movement and immersive WebXR visualisations; outputs published through Eurographics/CGVC.



EDUCATION

PhD in Computer Science - Artificial Intelligence, Machine Learning and Advanced Computing

Bangor University (UKRI CDT-AIMLAC) | 2023 - Expected 2027

Fully funded UKRI scholarship, grant EP/S023992/1. Research focuses on explainable legal AI, visualisation for legal interpretation, RAG, knowledge representations and human-centred systems.

MSc Advanced Computer Science

Bangor University | 2022 - 2023

MSc Computer Networking and Network Design

Middlesex University | 2018 - 2020

BSc Information Technology and Business Information Systems

Middlesex University | 2017 - 2018

Professional Diploma in Information Technology - Software Engineering

NIIT | 2015 - 2017



SELECTED PUBLICATIONS, POLICY & IMPACT

- Ogbonda, E. G., Nason, S., Roberts, J. C. & Butcher, P. W. S. "Explanatory Visualization with LLMs for Employment Law." IEEE VIS 2025 Poster.
- Nason, S., Ogbonda, E. G., Roberts, J. C. & Butcher, P. W. S. "Harnessing Generative AI to Enhance Access to Online Dispute Resolution in Employment Law." AI for Access to Justice Workshop, ICAIL 2025.
- Ogbonda, E. G., Butcher, P. W. S. & Roberts, J. C. "Crafting Visual Narratives..." CGVC 2023. DOI: 10.2312/CGVC.20231203.
- Ogbonda, E. G., Roberts, J. C. & Butcher, P. W. S. "Interweaving Data and Stories..." CGVC 2023. DOI: 10.2312/CGVC.20231192.
- Ogbonda, E. G. "Immersive WebXR Data Visualisation Tool." Eurographics Digital Library, 2023. DOI: 10.2312/CGVC.20231202.
- Co-author, Bangor University response to the Online Procedure Rule Committee on inclusion, explainability, interoperability and responsible AI in digital justice (2025).
- Contributor to Bangor University written evidence published by the UK Parliament Justice Committee (2025). EmployODR was also featured in the Law Society's 21st Century Justice Final Report.



CERTIFICATIONS, AWARDS & MEMBERSHIPS

Professional credentials: IBM Data Science Professional Certificate; IBM Data Analyst Professional Certificate; Applied Data Science Specialization; NITDA Machine Learning Professional

Awards: UKRI CDT-AIMLAC fully funded PhD scholarship (EP/S023992/1); Course Representative Awards (2023, 2024)

Memberships: BCS; IEEE; ACM; AAAI

Additional academic engagement: Visiting/occasional study in ML, quantum computing, astrophysics data analysis and research methods at Bristol, Swansea, Cardiff and Aberystwyth (2023-2025)

Interests: Powerlifting (240 kg squat at 74 kg bodyweight), judo, rugby, hackathons and cross-disciplinary technology communities