Alex E Benn

Nationality: British
Email: alex@openworldscientific.org
Address: Witney, UK
Website: openworldscientific.org
LinkedIn: linkedin.com/in/alexbenn

PROFESSIONAL SUMMARY

Principal engineer specialising in scientific software, with twenty-plus years building tools scientists use in production across cheminformatics and structural biology. At GSK I lead product and architecture for assay, registration and scientific data platforms. Outside that I built Chain of Thought end to end, alone: a graph-native investigation prototype where an agent orchestrates real tools and every result stays a typed, inspectable object rather than a block of text. Hands-on full-stack delivery (React, TypeScript, Go, Python, GCP) with product judgement and architecture direction. Engineering discipline: reusable components, transparent provenance, and AI that shows its working.

PERSONAL PROJECT

Chain of Thought - graph-native scientific investigation prototype

Built end to end, alone, outside employment `2025 - 2026`

- LLM agent, MCP tool contracts, typed results on an execution graph, and containerised scientific compute on GCP
- Design notes: openworldscientific.org/architecture

PROFESSIONAL EXPERIENCE

Principal Engineer · Product & Architecture

GSK `April 2020 - Present`

Hands-on principal ownership: product and architecture for production scientific platforms scientists use every day. Other teams ask me onto platforms I do not own when a decision is stuck. Apps I do not own still run on the UI and data approach I built.

KEY ACHIEVEMENTS

- Architected and delivered the production assay data platform consolidating structured plate and high-content imaging results across research sites, retiring legacy systems
- Architecture and delivery for the BigQuery scientific data platform used across discovery informatics
- Designed the alliance and asset-restriction system: policy in the query path, fail closed on a false negative
- Built the production data pipelines behind registration and assay ingest
- Rebuilt chemical building-block registration on BigQuery, with parent/version relationships and physicochemical properties in the registration path

TECHNOLOGIES: Go, Python, TypeScript, React (Mantine, Ant Design), Node.js, PostgreSQL, BigQuery, GCP, Dataform, Cloud Workflows, Cloud Run, Cloud Functions, Pub/Sub, Terraform, Docker, Firebase Hosting, GitHub Actions

Enterprise Solutions Architect

GSK via Cognizant — **March 2014 - April 2020**

Solutions architect for scientific informatics: production delivery plus architecture direction across discovery platforms.

KEY ACHIEVEMENTS

- Delivered the high-content screening web application processing terabytes of imaging data
- Built the data validation, visualisation and submission platform
- Led cross-functional delivery of the biological registration system
- Architecture direction for enterprise lab notebook and inventory integrations
- Automated build and deployment tooling to shorten release cycles

TECHNOLOGIES: Java, JavaScript, TypeScript, Python, React, PostgreSQL, Pipeline Pilot

Solutions Consultant / Enterprise Informatics

Accelrys Limited (Biovia) - Cambridge, UK — **April 2008 - March 2014**

Solutions consultant for scientific informatics, delivering systems to pharmaceutical and biotech clients worldwide.

KEY ACHIEVEMENTS

- Architecture and delivery on an n-tier web system managing 1M+ data points
- High-throughput image analysis for LSHTM parasitology research (published in PLoS Neglected Tropical Diseases)
- ETL protocols consolidating databases across pharmaceutical sites
- Built a web charting library for scientific data visualisation, from prototype to production

TECHNOLOGIES: Pipeline Pilot, Java, JavaScript, Oracle, PostgreSQL, ExtJS, Flex, Tomcat

Database & UI Specialist

Imagineer Systems Ltd - Guildford, UK — **April 2007 - April 2008**

- Designed PostgreSQL schema for asset management
- Created automated C++ and stored procedure code generator for ORM
- Implemented unit testing framework to reduce regression bugs
- Built UI components for professional client applications

TECHNOLOGIES: C++, PostgreSQL, Qt library

Platform Architect / Drug Discovery

Siena Biotech S.p.A - Siena, Italy — **June 2004 - April 2007**

- Designed and built Nucleo molecular modelling suite with 3D visualisation and real-time job monitoring
- Architected distributed computing infrastructure with Sun Grid Engine
- Compound registration system for drug discovery
- Presented at GRC MedChem conference

TECHNOLOGIES: C++, Oracle, Qt library, Sun Grid Engine

Scientific Software Engineer / Drug Discovery

Medivir - Cambridge, UK January 2001 - June 2004

- Built Q-Dock: QM/MM protein-ligand docking with GAMESS on a Beowulf cluster
- Built Focus: combinatorial assay visualisation used across thousands of assays (published papers)
- Molecular alignment algorithms and interactive 3D visualisation for SGI IRIX and Linux
- Linux cluster with MOSIX load balancing for high-throughput docking

TECHNOLOGIES: C, Fortran, C++, Oracle, Qt library, OpenGL, Linux

EDUCATION

Aerospace Engineering
Hatfield Polytechnic - Hatfield, UK

Hills Road Sixth Form College
Cambridge, UK

PUBLICATIONS

Paveley RA, Mansour NR, Hallyburton I, Bleicher LS, **Benn AE**, et al.

"Whole Organism High-Content Screening by Label-Free, Image-Based Bayesian Classification for Parasitic Diseases"

PLoS Negl Trop Dis. 2012;6(7):e1762. doi: 10.1371/journal.pntd.0001762

Benn A, Andreini M, Bothmann H, Brandi R, Forli S, et al.

"Nucleo - Integrated cheminformatics, modelling and analysis platform"

Poster presented at 2006 GRC MedChem Poster Session, New London, NH

Wang Y, **Benn A**, Flinn N, Monk T, Ramjee M, et al.

"cis-6-oxo-hexahydro-2-oxa-1,4-diazapentalene and cis-6-oxo-hexahydropyrrolo[3,2-c]pyrazole based scaffolds: design rationale, synthesis and cysteinyl proteinase inhibition"

Bioorg Med Chem Lett. 2005 Mar 1;15(5):1327-31

Quibell M, **Benn A**, Flinn N, Monk T, Ramjee M, et al.

"Synthesis and evaluation of cis-hexahydropyrrolo[3,2-b]pyrrol-3-one peptidomimetic inhibitors of CAC1 cysteinyl proteinases"

Bioorg Med Chem. 2005 Feb 1;13(3):609-25