

SUMMARY

Enthusiastic about designing, building, and improving software that changes the way people work. Attained a PhD in particle physics by developing software to manipulate and analyse large data sets and to simulate physical systems to advise on detector design. Currently applying this experience to design software solutions for clients in the insurance industry as a Technical Business Analyst. Looking to learn and grow in a role utilising existing software and research expertise whilst further expanding this skill set.

EXPERIENCE

Technical Business Analyst

Acturis, Birmingham

May 2024 – Present

- Working within a team to build and maintain e-trade insurance products for insurers and MGAs
 - Convert complex build requirements into technical specifications
 - Leverage continuous integration, unit testing, and acceptance testing to deliver builds accurately and efficiently
- Dedicated product owner for a key client
 - Primary point of contact for queries, defects, and product maintenance
 - Scope, estimate costs, and set timelines for new feature requests
- Built a suite of Python tools to automate common processes e.g. manipulating XML messages or component testing via internal webservises

Postgraduate Researcher

University of Birmingham, Birmingham & CERN, Geneva

2019 – 2024

- Produced 2 cutting-edge physics analyses within the ATLAS collaboration, one in a team and one independently
 - Developed bespoke software in C++ and Python to process and analyse high-volume physics data
 - Leveraged machine-learning discriminants and complex likelihood models produce statistically significant results
- Worked on software and hardware upgrades to the ATLAS detector trigger system
 - Designed and simulated new trigger algorithms in C++
 - Assisted with installation of new trigger hardware
- Taught Python to 3rd-year undergraduate students in computing labs for 3 years

EDUCATION

PhD Particle Physics

University of Birmingham

2019 – 2024

- Thesis on electroweak multiboson interactions with Z bosons, photons, and jets with the ATLAS experiment at the Large Hadron Collider

MSci Physics with Particle Physics and Cosmology

Class I Cum Laude, University of Birmingham

2015 – 2019

- Graduated first in year for experimental physics
- Awarded Bloodworth Prize and Moreton Prize for academic excellence
- Awarded Tessella Prize for most innovative use of software in Masters Y4 project

A-Levels: Maths, Further Maths, Physics, Computing

4 A*s, Hereford Sixth Form College

2013 – 2015

TECHNICAL SKILLS

- Programming languages: C++, Python, JavaScript, SQL, Bash
- Software engineering: designed and used many large software frameworks
- Version control software: Git (GitHub, GitLab), SVN
- GNU/Linux systems: personal computers, remote servers
- Data science: statistical analysis, machine learning, data engineering
- Data visualisation, particularly Python Matplotlib
- Document typesetting, particularly L^AT_EX
- General IT skills: office suite programs, computer hardware

Experience:

11 years

6 years

8 years

8 years

5 years

5 years

9 years

15+ years

TRANSFERABLE SKILLS

- Communication
 - Presented research at national conferences and meetings including [IOP HEPP conference](#)
 - Delivered technical demonstrations to internal teams at Acturis on new automation tools
- Teamwork
 - Deliver feature builds and product maintenance services within a team of 8 people at Acturis
 - Worked in a team of 10 people to deliver a [world-leading physics result](#)
 - Collaborate proactively with team members, both offering support and seeking input to overcome technical challenges
- Customer relationship management
 - Communicate regularly with clients to provide updates on ongoing builds or defects, providing prompt fixes or timeline estimates
 - Lead fortnightly meetings with dedicated client to communicate status of current projects and investigations
- Organisation
 - Manage time across many simultaneous projects to meet resource allocation within team at Acturis
 - Schedule time to allow flexibility to react promptly to queries but also block out time to progress projects
- Project Management
 - Planned and independently performed a [2.5-year-long physics analysis](#)
 - Plan multi-month projects to implement new features requested by Acturis clients
- Self-motivated learner
 - Attended postgraduate training courses on topics including statistical analysis and machine learning methods
 - Actively enrol on any internal Acturis training sessions applicable to my role to advance my technical knowledge
- Problem solving
 - Excellent academic record, achieving very high grades across a range of assessments requiring advanced problem solving skills
 - Significant experience debugging software defects in research and commercial contexts

PROJECTS

- Acturis automation tools [Software]
 - Personally designed and built a collection of Python tools to automate a range of testing, deployment, and debugging tasks
 - Received excellent feedback and uptake from colleagues, improving efficiency across the team
- Triboson $VZ\gamma$ analysis (see [thesis](#), Chapter 6) [Research]
 - Independently performed physics analysis providing world-first measurement of ultra-rare process
- Electroweak analysis framework [Research/Software]
 - Used Python and C++ to create a generic analysis framework, allowing the user to specify complex data manipulation and analysis through simple configuration files
- VBS $Z\gamma$ analysis (see [thesis](#), Chapter 5) [Research]
 - Contributed reconstruction studies and analysis of systematic uncertainties
- Trigger hardware visualiser (see [thesis](#), Section 3.2) [Research/Software]
 - JavaScript web-app which displays energies read by an ATLAS trigger module, visualising and recreating trigger algorithms used to process these energies
 - Developed based on requirements provided by a colleague involved in firmware debugging
- Personal Website (hazza4569.github.io) [Software]
 - Passion project to develop a modern interactive JavaScript website with no plugins, under construction
- A selection of other software projects can be found on my [GitHub page](#)

INTERESTS

Hobbies include playing sport, such as tennis and 5-a-side football; watching football, as an avid Luton Town supporter and fantasy premier league manager; watching international rugby, supporting Scotland in the six nations and autumn internationals; cooking, particularly Italian and Indian food; coffee, brewing espresso-based drinks at home; wine, craft beer, and real ales; and writing code or tinkering with computers for personal projects.