JAMES PARRY

Aerospace Engineer

+44 7825 748935
james@parryclowes.com
/in/jamesparry97
github.com/jamesparry1

PROFILE

Driven aerospace engineer with experience in numerical modelling and software development for turbulent flows and conjugate heat transfer with application in the aerospace industry. Research skills in developing, validating and optimising open-source software to inform the design of next-gen gas turbine compressors. Experienced at analysing and communicating results, with the ability to work in a multidisciplinary team to deliver industrially relevant projects. Design and optimisation capabilities with experience in the construction and testing of UAS in collaboration with industry, with industrial experience in additive manufacturing and stealth technology.

SKILLS

Software: C++/C. Python, MATLAB, Simulink, SQL, FORTRAN

CAD: Autodesk Inventor, SolidWorks, ANSYS SpaceClaim, CATIA

CFD: OpenFOAM, ANSYS-Fluent, CFX

Meshing: ANSYS ICEM, blockMesh, Gmsh

Analysis: ParaView, Tecplot, Python

OS/HPC: Linux (Shell), Windows

PROJECTS

CHT-CFD

CHT-CFD for Turbomachinery

- **Open-source CFD developer** specialising in heat transfer modelling using unsteady coupled Conjugate Heat Transfer (CHT) simulations.
- **Industrially sponsored** research by Siemens-Energy and undertaken at the world-leading **Turbomachinery Research Centre** at the University of Bath.
- Specialisation on the analysis of **rotating turbulent flows with thermal interaction** in gas turbine compressor cavities.
- Experience **developing and implementing** solvers and boundary conditions for turbomachinery application, with **optimisation for parallel architecture**.
- Experience **managing large datasets** using MATLAB and Python for analysis.
- Technical experience in **verification and validation** of CFD codes through multidisciplinary approaches.
- **HPC experience** including queue management and slurm scripting. Successful applications to *EPSRC Cirrus* cluster for £35000 worth of computation time.
- Presented at international CFD and turbomachinery conferences. Nominated as a reviewer for the European Turbomachinery Conference and ASME Turbo. Expo.
- Delivered presentations and **collaborated with international project partners** from Siemens-Energy and Rolls-Royce.

Publications

- Conjugate Modelling of a Closed Co-Rotating Compressor Cavity - Journal of Engineering for Gas Turbines & Power
- A Conjugate Methodology for Rotating Flows – OpenFOAM Journal (Forthcoming)

Optimisation

Multi-objective Topology Optimisation for Tilrotor UAS

- Developed a **multi-objective BEMT code** in MATLAB for optimising propeller geometry at both fixed-wing and VTOL flight for a variable-pitch system.
- Implemented an **FEA model** for calculating deflection and further aerodynamic corrections to improve performance predictions.
- **Validation** of the model undertaken using wind tunnel testing of optimised propellers produced by industrial partners using **Additive Manufacturing**.

EXPERIENCE

2019 – 2024 **Consultant Engineer: Team Bath Drones** **University of Bath - Bath**

- Consulted on the development and build of several UAS as part of Team Bath Drones, including the competition team strategy.
- Disciplines covered included **project management, propulsion design, structures and performance design.**
- Lead Designer for the development of a tilt-rotor search and rescue drone, from concept through to detailed design, following a **systems engineering** approach to meet the stakeholders' specification.
- Managed the GA and subsystems, with experience in **CAD/CAM** manufacture of aerodynamic components and GFRP layup.
- Led the propulsion engineering for UAS, designing and specifying the **electric propulsion** system of the aircraft, identifying and testing COTS solutions and **designing heat sinks** for ESCs.

2020 – 2024 **Academic Supervisor** **University of Bath - Bath**

- **Mentored** five Master students as technical supervisor for MEng thesis. Projects include: Radiation modelling in OpenFOAM, Advanced analysis tools for OpenFOAM, Modelling blade-wake interaction for ducted propellers.
- Prepared material and delivered lectures/tutorials for MEng and BEng courses to over 200 students at the University. Led the demonstration and assessment of BEng laboratories. Total supervision time for teaching exceeds 150 hours.

2019 – 2019 **Additive Manufacturing Engineer** **GKN Aerospace - Bristol**

- Collaborated with the **Additive Manufacturing** (AM) team in the production of lightweight components for commercial UAS.
- Applied industry standard **CAD/FEA** practices for **optimising** critical multi-functional components.
- Utilised composite layup and AM lattice techniques for reinforcement and weight reduction, using **FDM and SLS** methods.

2017 – 2018 **Stealth Engineer** **QinetiQ - Farnborough**

- Industrial placement within the Advanced Services & Products team developing acoustic stealth technology.
- Led projects on composition **development & testing** of underwater repair materials and QA testing of contracted companies.

EDUCATION

2020 - 2024 **PhD: Aerospace Engineering** **University of Bath - Bath**
Thesis: "Development of a Coupled CHT-CFD Solver for Modelling Heat Transfer in Gas Turbines"

2015 - 2020 **MEng: Aerospace Engineering - First Class Honours** **University of Bath - Bath**
Thesis: "Optimal Propeller Design for Tiltrotor Unmanned Aircraft Systems"

ADDITIONAL SKILLS

- Manufacturing experience with AM (FDM, SLS, SLA), CNC Routers, Composites (GFRP)
- **Languages:** French, German, Japanese, Chinese
- Mechanical Engineering Football Captain (2019-2023)

References available upon request.