**Title:** Development of Aerodynamic Optimisation Techniques

**Type of award**  
PhD Research Studentship

**Department**  
Aerospace Engineering  
Fluids and Aerodynamics Research Group

**Scholarship Details**  
Minimum £17,668 p.a. in 2022/23 plus an industry-based top-up subject to eligibility and confirmation of award

**Duration**  
3.5 years

**Eligibility**  
Home

**Start Date**  
From October 2023

**PhD Topic Background/Description**

An exciting opportunity exists to develop and test computational fluid dynamics-based (CFD) aerodynamic optimisation tools, working on a PhD project alongside our industrial partner. The project will extend current capabilities and develop new ones focused on high fidelity aerodynamic optimization, including topological and detailed surface shape control. Work will involve programming new methods to describe exterior (e.g. wings and aerofoils) and interior shapes (e.g. intake ducts), and linking this to CFD software and optimisers, with both transonic and supersonic cases being considered. The objective will be to create a tool that can automatically generate new aerodynamic designs with improved performance.

The project will progress through from development of initial concepts to software implementation and presentation of results via international conference attendance and journal paper publications.

**Candidate Requirements**

Applicants must hold/achieve a minimum of a Master’s degree (or international equivalent) in a mathematics, computer science, physics or engineering discipline. Applicants without a Master’s qualification may be considered on an exceptional basis, provided they hold a first-class undergraduate degree. Please note, acceptance will also depend on evidence of readiness to pursue a research degree.

*Desirable:* Experience with C/C++ or Fortran will be an advantage. The successful candidate will have a keen interest in numerical modelling, aerodynamics and scientific programming.

If English is not your first language, you need to meet this profile level:  
Profile E

Further information about: [English language requirements and profile levels](#).
Scholarship Details
Minimum £17,668 p.a. plus an industrial top-up covering tuition fees and a tax-free stipend for 3.5 years. Funding is subject to confirmation of eligibility and award.

For eligibility and residence requirements please check the [UKRI UK Research and Innovation website](https://www.ukri.org).  

Enquiries
For questions about the research topic please contact [Dr Thomas Rendall](mailto:thomas.rendall@bristol.ac.uk).

For questions about eligibility and the application process please contact [came-pgr-admissions@bristol.ac.uk](mailto:came-pgr-admissions@bristol.ac.uk)

Application Details
To apply for this studentship, submit a PhD application using our [online application system](https://www.bristol.ac.uk/pg-howtoapply)

Please ensure that in the Funding section you tick “I would like to be considered for a funding award from the Aerospace Engineering Department” and specify the title of the scholarship in the “other” box below with the names of the supervisor.

Interested candidates should apply as soon as possible. Applications will remain open until the position is filled.