

Alexander Haslam

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PROFILE

An Oxbridge-educated engineer with a PhD from Imperial College, and experience in F1 and agtech. An expert in modelling and simulation, complemented with Python and machine learning skills. Seeking a new role in tech solving challenging problems.



EXPERIENCE

Senior Engineer | Optimal Labs Ltd.

SEPT 2020 – PRESENT

- Working on autonomous control of commercial greenhouses.
- Responsible for control of greenhouse climate incl. data processing, modelling and writing optimal control algorithms in Python.
- Developed high-fidelity models which underpinned the controller using both data-driven and physics-based approaches. Implemented pipelines for training the models using real-world data.
- Led on bringing new features to fruition, including scoping, planning and co-ordinating multi-disciplinary group of engineers.
- Contributed to the development of fundamental tooling to improve our processes, including MPC and experiment frameworks.

Simulation Engineer | McLaren Racing Ltd.

AUG 2012 – OCT 2016

- Responsible for developing real-time car model, controller for the vehicle-in-the-loop simulator, and offline simulation tools used by race engineers whilst meeting tight deadlines.
- Took lead on significant projects such as rewriting car model in C++ and developing a controller for prototype simulator concept.
- Performed studies into vehicle dynamics fundamentals, which directed the design of new components for the race car.



EDUCATION

PhD Mechanical Engineering | Imperial College London

OCT 2016 – SEPT 2020

- Investigating non-linear dynamics of rotating machines for Rolls Royce
- Implementing [rotordynamic modelling framework](#) using the Finite Element Method. Created additional open-source toolboxes for [post-processing experimental data](#) and [numerical simulation](#).
- Designed and built a test rig which was then used to validate results from numerical simulations.

- Attended a research programme at Rice University, TX. Led group of four researchers, culminating in a conference paper.
- Contributed to undergraduate computing course in Python, and demonstrator for dynamics lab.

MEng Engineering | University of Cambridge

OCT 2008 – JUN 2012

- Specialising in mechanical and control engineering, Graduated with Distinction. Attained 1st in all 4 years.
- Master's thesis: Vehicle stability metrics for Renault F1 team.

A-Levels and GCSEs | Trinity School of John Whitgift

SEPT 2000 – JUL 2008

- A Levels: 4 A in Maths, Further Maths, Physics and German.
- GCSEs: 9 A* & 1 A incl. Maths (A*), the Sciences (all A*), English (A)



PUBLICATIONS

1. Haslam, A., Schwingshackl, C.W., Muscutt, L., Rix, A. and Price, M. (2020) Experimental investigation of non-linear stiffness behaviour of a rolling-element bearing. In: 12th International Conference on Vibrations in Rotating Machinery
2. Haslam, A.H., Schwingshackl, C.W. & Rix, A.I.J. (2020) A parametric study of an unbalanced Jeffcott rotor supported by a rolling-element bearing. Springer. Nonlinear Dyn.
3. Haslam A.H., Schwingshackl C.W., Rix A.I.J. (2019) Analysis of the Dynamic Response of Coupled Coaxial Rotors. In: Di Maio D. (eds) Rotating Machinery, Vibro-Acoustics & Laser Vibrometry, Volume 7. Conference Proceedings of the Society for Experimental Mechanics Series. Springer, Cham
4. Haslam A.H. et al. (2019) Nonlinear System Identification for Joints Including Modal Interactions. In: Kerschen G. (eds) Nonlinear Dynamics, Volume 1. Conference Proceedings of the Society for Experimental Mechanics Series. Springer, Cham
5. Braghieri G, Haslam A, Sideris M, Timings J, Cole D. (2017) Quantification of Road Vehicle Handling Quality Using a Compensatory Steering Controller. ASME. *J. Dyn. Sys., Meas., Control*.



SKILLS

Software

- Python incl. Numpy and Pandas
- Git, unit tests, CI
- Cloud (GCP) and Docker

Simulation

- Physics-based models
- Finite elements and model reduction
- Dynamical systems
- Numerical simulation

Machine learning

- Data analysis
- Training models with Scikit-learn and JAX
- MLOps software (ClearML)
- Data visualisation using Plotly/Matplotlib/Streamlit



INTERESTS

Enjoy running and cycling. Craft beer and coffee lover.



REFEREES

Employer

Dr Graeme Morrison
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PhD Supervisor

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