

# Curriculum Vitae

## Youssef Elashmawi

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### Professional Experience

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**Experimental Research Assistant, University of Southampton** 2023 May – 2023 July

*Lab Assistant*

- Aided in experiments investigating indoor-outdoor pollutant dispersion.
- Preparing and manufacturing building models.
- Preparation and setup of data acquisition equipment for Simultaneous PIV and PLIF.
- Handling of double pulsed high energy lasers and planar sheet setups
- Employed intensity calibration techniques for quantitative mean concentration analysis from PLIF.
- Maintained flow conditioning setup, for developing a turbulent boundary layer profile.

**Maintenance Department, Network Rail** 2021 Aug – 2022 Sept

*Engineering Placement Student*

- Undertook preparation and presentation of working maintenance models for the upkeep of engineering assets.
- Undertook the review and digitalization of existing maintenance models.

**University level tutor, Coventry** 2020 Aug – 2021 Jan

*Self employed*

- Tutored a group of 4 students in Finite element analysis, providing the delivery of theoretical understanding behind FEA.
- Tutored a group of 4 students in Computational Fluid Dynamics. Helping with delivering the fundamental understanding behind FDM methods and good meshing practice.

### Education

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**Norwegian University of Science and Technology** 2024 Jan – Current

*PhD Candidate*

- Employed under an ERC grant, focusing on the effect of turbulence on gas-liquid Interfaces and mass transport across them.
- Working on multiple experimental campaigns, utilizing acquisition techniques such as PIV, LIF, SPIV.

**Southampton University, Southampton** 2022 Sept – 2023 Sept

*Aerodynamics and Computation MSc.*

- Projected First Class graduation.
- Developing an in-depth understanding of aerodynamic phenomena.
- Undertaking various experimental and computational lab analysis techniques
- Thesis dissertation ‘Effect of tall buildings on velocity field and wake structures’ SP (Dr Christina Vanderwel and Prof Zheng-Tong Xie).

**Coventry University, Coventry** 2018 Sept – 2022 Jul

*Mechanical engineering (BEng) (Hons) with Placement year*

- Graduated with a First Class.
- Developed expert understanding in basic engineering principles (heat transfer, aerodynamics, dynamic & static analysis).
- Thesis dissertation ‘The investigation of fluid flow on a DrivAer vehicle utilizing plasma actuators’ SP (Dr Derek Taylor).
- Client-based dissertation and project ‘VR motion safety harness rig’ SP (Dr Faris Elasha)

*A-Levels and GCSE's*

- 3 A-Levels in Maths, Physics, and Business (Self-Taught).
- 10 O-levels in all stem subjects and subsidiary business-oriented subjects.

**Research days, Conferences and Extra-curricular efforts****Wind Engineering Society (WES) day, University of Southampton****2023 June***Poster Presentation*

- Presented a poster covering an LES investigation of tall buildings on the surrounding urban microclimate.

*Organizer*

- Helped in the preparation of the WES venue and chairing the research talks

**LES Training Workshop, University of Southampton****2022 May***Attendee*

- Delivery of the fundamentals of LES and sub-grid scale models
- Delivery of ADMS models and the modelling of pollutant plumes using gaussian modelling

**The American University in Cairo****2016 June – 2016 July***STEM Internship*

- developed at an early stage in life my passion for engineering topics.
- Developed an autonomous miniature vehicle designed for a specified track.
- Undertook essential beginner level learning for STEM subjects.

**Technical Competencies**

- **Proficient use of CFD software:** utilized **ANSYS: Fluent**, developing validated models using **URANS** for standardized vehicle bodies to assess plasma actuators as a flow control method, heavily dependent on implementing user defined functions to model momentum sources. In addition to, high fidelity **LES** utilizing, **PALM** on urban flow problems.
- **Proficient in various aerodynamic experimental techniques:** **Simultaneous dual Cam PIV** and **PLIF** on urban airflows in a recirculating water tunnel. **HWA** on performance of modified aerofoils. **6-axis force balance** measurements, **flow visualization** and **pressure rake** readings on performance of a scaled F1 vehicle. **Manometer** and **orifice plate** measurements on the head loss in water pipes
- **Competent use of CAD software:** Utilized **CATIA V5** & **Solidworks** in multiple projects throughout my engineering degree and private projects. Developing products from scratch through the entire design process and **CAD modelling** to **2D drawings** following **ISO & BS:ISO** standards. Products were developed for different purposes, ranging from experimental setup preparation to client-based delivery.
- **Competent use of MATLAB and Python:** Utilized both software to post process datasets and analyze experimental results from PIV and HWA, and force measurements. As well as developing **Simulink models** for control systems applications for closed loop feedback systems. Developed a **2<sup>nd</sup> order accurate FDM solver for Couette flows** using MATLAB, for transition prediction analysis.
- **Competent use of FEA software:** Utilized **ABAQUS**, **HYPERMESH**, and **ANSYS: MODAL** to assure structural integrity of developed structures. With an industry-level product being delivered to NTDC, a client with the use of FEA as a quality assurance method, paired with expert use of engineering models such as FMEA tables to assess the product's risk.
- **Proficient use of Microsoft package**