

# MOUSTAFA ABDELWAHAB

Nationality: British

## SUMMARY

Highly motivated and dynamic Civil and Structural Engineer, who demonstrates an innate adaptability to meet business priorities and goals. With a strong passion for engineering design and problem solving, I am a practical innovator who enjoys using my technical mind to deliver quality solutions, solve problems and shape the world around me. I am also a **Member of Institution of Civil Engineers (ICE)**.

With a passion for continually developing my strengths and abilities, I complete tasks to the highest standard, with attention to detail. I am a strong communicator who can foster the key relationships required to achieve success. Working as a **Civil Engineer** and having taken several positions and completed various placements, I developed the necessary skills to manage civil engineering packages, supervise engineering activities, and collaborate with parties to deliver projects efficiently.

## EDUCATION

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|-----------------|---|
| Jan 21 – Jun 24 | <b>HERIOT WATT UNIVERSITY, THE SCHOOL OF ENERGY, INFRASTRUCTURE AND SOCIETY (EDINBURGH, UK)</b><br><b>MSc Advanced Structural Engineering (Part-time) – 1<sup>st</sup> Class Honours (82%; Top on Cohort &amp; School; Distinction)</b> |
| Sep 16 – Jul 19 | <b>THE UNIVERSITY OF LEEDS, THE SCHOOL OF CIVIL ENGINEERING (LEEDS, UK)</b><br><b>BEng Civil &amp; Structural Engineering – 1<sup>st</sup> Class Honours (80%; Ranking: Top 5 on Cohort; Distinction)</b>                               |
| Sep 13 – Jun 15 | <b>BRITISH CURRICULUM HIGH SCHOOL EDUCATION</b><br><b>A' Levels – Mathematics (A*); Physics (A); 8 IGCSE's (A* – A)</b>   |

## ENGINEERING & RESEARCH PROJECTS

- **Preliminary Bridge Design (BEng – Year 3)** – Undertook preliminary structural design of a Double-Deck Steel Truss Bridge using **Robot, Revit, AutoCAD** and **Excel** along the proposed HS2 route in West Yorkshire. Moreover, I undertook feasibility studies as a part of the HS2 scheme (phase 2b) for 4 alternative proposed routes and prepared a comprehensive feasibility report covering financial, structural, geotechnical and environmental aspects. **(Result: 82%, 1<sup>st</sup>)**
- **Design, Structural Optimisation and 3D Printing of Connections for Reticulated Structures (Research Placement)** – Investigated the use of **Structural Topology Optimisation (STO)** and **Additive Manufacturing (AM)** to design and fabricate lightweight node-connections for reticulated frames. Developed parametric models in **Fusion 360**, performed non-linear FEA in **ABAQUS**, and refined printable geometries using **MeshMixer**. Achieved up to 46.9% weight reduction and 3D printed prototypes using DMLS technologies.  
- Published in the **9th ICSAS Conference** – <http://bit.ly/2UIQms9>.
- **Structural Non-Linear FEA Modelling of Steel Fibre Reinforced Concrete Beams (MSc Research Project)** – Conducted a study on the influence of steel fibre addition to the capacities of concrete beams, employing numerical non-linear FEA (**ABAQUS**) and experimental comparisons to recent publications. I revealed 18% enhancements in capacity, highlighted the shift in failure mode and identified rebar reduction needs. **(Result: 83%, Distinction; Top of Class)**
- **3D Printing of Fibre Reinforced Polymer Composites using Industrial Robotic Arms (BEng Research Project)** – Undertook a state-of-the-art literature review studying the applicable 3D printing technologies and patents, polymer materials, reinforcement and curing techniques to be integrated with advanced industrial robotic arms in the fabrication of large-scale and complex structures. **(Result: 80%, 1st; 2nd on Cohort)**

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## AWARDS & ACHIEVEMENTS

Attended a Leadership Training Programme at **KAIST** (South Korea) focused on **A.I.** and Technological Innovations: <http://bit.ly/2YcsQjE>

A **“3D Hubs Student Grant 2019”** winner for utilising 3D printing to realise an innovative engineering project: <http://bit.ly/2M0tzRF>

Prepared a **Research Paper** for the **ICSAS19** Conference: <http://bit.ly/2UIQms9>

Achieved **highest grade** in four modules including structural design and material sciences twice.

### Awarded the Following Academic Awards:

- **“Watt Club Medal”**: Top taught Master’s student with Distinction for entire graduating 2023/24 cohort in the School of EGIS.
- **“University Prize (Off-Campus)”**: Best overall average mark for the entire graduating cohort of 2023/24 within subject area (D2).
- **“Dean’s List Award” (1<sup>st</sup> and 2<sup>nd</sup> year)**: Awarded to the top 5% of engineering students from the 1<sup>st</sup> and 2<sup>nd</sup> years, twice.
- **“British Construction Steelwork Association Prize”**: Outstanding ability in the Design of Steel Structures at Year 2.
- **“Heseldin Prize”**: Outstanding ability in the scheme of study at Year 2.
- **“CF Lunoe Trust Prize”**: Outstanding performance in Reinforced Concrete project and exams at year 2.
- **“ISTRUCTE Prize”**: Outstanding Academic Performance in Struc. Eng. subjects at Year 1.

Presenter in the following academic conferences:

**ICSAS 2019** – <http://bit.ly/2Rptb2q>  
**ICUR 2017 / 2018** – <https://bit.ly/2F60sJV>  
**BCUR 2018** – <https://bit.ly/2BYaFUX>

## COMPUTER/SOFTWARE SKILLS

Markups/BIM - Revu / Revit / AutoCAD / Civil3D  
Tekla Tedd’s / Structural Designer / Masterseries  
Autodesk Robot Structural Analysis  
ABAQUS / Fusion 360 Integration  
Rhino 8 / Parametric Modelling

## SKILLS & EXPERTISE

Written & Verbal Communication Skills  
Lightweight Structural Design & Optimisation  
Leadership & Organisation  
Problem Solving & Decision Making  
Eagerness to Learn & Self-Sufficiency  
Numerical Analysis & Computational Proficiency

## WORK EXPERIENCE

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- Oct 24 – Current**      **ATKINSRÉALIS (INFRASTRUCTURE DEPARTMENT, BUILDINGS TEAM)**      **(Glasgow, Scotland)**  
**(1 year, 0 Months)**      **Civil Engineer**
- Worked on projects, incl. "[University of Edinburgh](#)" and "Police Scotland", and undertook the following tasks:
- Civil Design Lead for **RIBA Stages 1–3**, delivering drainage strategies, external works, earthworks, and SuDS in compliance with **SEPA, Scottish Water**, client requirements and local authority standards.
  - Produced/coordinated **Civil3D models** and **AutoCAD/Civil3D drawing packages (conceptual to construction)** for levels, earthworks (cut/fill), construction details, hardstanding layouts, vehicle tracking, and road markings.
  - Developed **drainage and surface water strategies**, incl. feasibility studies, runoff calculations, attenuation design, and liaison with statutory authorities (e.g., Welsh Water, SEPA, Thames Water).
  - Supported **geotechnical design**, advising on boreholes, DCP testing, and retaining wall feasibility solutions.
  - Delivered **civil feasibility reports** w. desktop studies, assessing topography, utilities, geotechnical data and flood risk.
  - Collaborated with **multidisciplinary teams** to ensure integrated design solutions and UK regulations compliance.
- Nov 21 – Oct 24**      **ATKINSRÉALIS (INFRASTRUCTURE DEPARTMENT, BUILDINGS TEAM)**      **(Glasgow, Scotland)**  
**(3 year, 10 Months)**      **Structural Engineer (2025 – 2023) / Bridge Engineer (2023 – 2021)**
- Worked on projects incl. "[Mohammed Bin Salman Nonprofit City \(MISK\)](#)" and "[The Mukaab](#)", and duties Include:
- Designer, and checker of proposed and existing buildings, incl. [Florida Int.l Airport](#), "[MISK](#)" and [The Mukaab](#) (CAT3).
  - Specialist structural modelling assessments (thermal, seismic, notional) in **Autodesk ROBOT**.
  - Structural Assessment of existing structures, including **steel, concrete, timber** and **composite** structures / footbridges.
  - Designer of civil structures, incl. fibre reinforced polymer footbridge, reinforced concrete railway under-track service crossing structure, and ancillary designs of 4 electrified railway feeder stations.
  - Inspected civil and structural assets, assessing condition and repair recommendations incl. **9 Scottish Water** masonry arch and steel truss bridges, **13 North Lanarkshire Council** bridges and culverts, and a 5m high arch culvert.
  - Prepared documentation and reports, incl. Network Rail Form002/003, findings and client reports.
  - Prepared H&S documents (RAMS, DRAs, Method Statements) and **CAD/Revit** layout and defect drawings.
- Sept 19 – Nov 21**      **WATERMAN GROUP (STRUCTURAL ENGINEERING TEAM; BUILDINGS)**      **(Glasgow, Scotland)**  
**(2 year, 2 Months)**      **Graduate Structural Engineer**
- Worked on numerous projects including "[NMIS](#)" and "[NTN](#)", and undertook the following tasks:
- Structural design of a **7-storey composite steel residential building** and two Special Needs Schools to Eurocodes.
  - H&S site inspection of Hampden Park Stadium and preparation of documentation for **Euro2020** matches.
  - Conceptual and detailed design for **timber, steel, masonry**, and **composite concrete** structures.
  - Analytical modelling and stability checks of complex frames in **Masterseries** and **Tekla Designer**.
  - Analysis and design of steel and RC elements in **Tedds** and **FEM**, including beams, columns, raft slabs, and foundations.
  - Drawing coordination / preparation in **Bluebeam, AutoCAD**, and **Revit** models for integration with analysis tools.
  - Prepared progress reports and documentation for SER certification, CDE specifications, and building warrants.
- Jun 18 – Jul 18**      **UNIVERSITY OF LEEDS (RESEARCH STUDENT, SCHOOL OF CIVIL ENGINEERING)**      **(Leeds, England)**  
**(1.5 Months)**      **Research Placement (<http://bit.ly/2CMZbNp>)**
- Performed structural optimisation and FEA testing of space frame node-connections using **ABAQUS** and **Fusion 360**, and undertook specialist design modifications in **MeshMixer** for 3D printing to produce bespoke and lightweight node-connections, and validate the design and manufacturing process.
- Aug 17 – Sep 17**      **SWECO (HIGHWAYS/BRIDGES ENGINEERING TEAM)**      **(Leeds, England)**  
**(1 Month)**      **Work Placement**
- Worked on the A1 and A47 schemes, performing structural checks for RC retaining walls in accordance with British Standards and calculating rainwater flow rates at manholes using AutoCAD contour maps and levelling data.
- Jul 17 – Aug 17**      **ARUP (FIRE SAFETY ENGINEERING TEAM)**      **(Leeds, England)**  
**(1 Month)**      **Work Placement**
- Worked on three early-stage fire strategy projects (RIBA Stages B & C), performing occupancy and escape calculations, structural compartmentation to BS 9999/BS 9991/Approved Document B, preparing sprinkler system reports (BS EN 12845), and drafting fire strategy reports with escape scenarios.

## REFERENCES

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- Available upon request.