Julian Stachura

R&D engineer with expertise in design, simulation, and control

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Having worked in several engineering sectors I have gathered the knowledge and experience necessary to work on multi-disciplinary projects. I am particularly passionate about system modelling and control systems.

Education

MEng Mechanical Engineering / The University of Edinburgh
From 09/2017 to 06/2022
- Overall average of 77.6%,
- Received the 2nd Year Class Medal awarded to the best-performing student in 2nd year of Mechanical Engineering,

IB Diploma Programme / High School no.3 in Gdynia, Poland
From 09/2014 to 06/2017
- Mathematics and Physics on higher-level passed with the highest possible mark (7) in both,
- Received a medal for contributions to the School's achievements through winning national and world titles in Odyssey of the Mind.

Languages:
- Polish (native)
- English (fluent)
- French (beginner)

Skills:

Coding:
MATLAB/Simulink, C, C++
Python, LaTeX, Git

CAD:
SolidWorks, Solid Edge, AutoCAD, Siemens NX, Fusion360

FEA:
Abaqus

CFD:
STAR-CCM+

Engineering experience

Generator Control Engineer / Siemens Gamesa Renewable Energy, Glasgow
Since 11/2022

- Developing generator model and control system in MATLAB/Simulink and C++:
  - Modelling of generator non-linear behaviour in C++,
  - Developing control algorithms for handling non-linear torque characteristics,
  - Tuning sensorless position detection,
  - Working on a complex software project, using Git and writing Unit Tests.
- Electrical Engineering training:
  - Design of analogue circuits using SPICE using Tina-TI,
  - Prototyping and testing of the circuit.

Research Engineer / SynchroStor, Edinburgh
From 05/2022 to 08/2022

- Developed fast-switching magnetic valves for pumped heat energy storage device,
  - Developed a Simscape model of the valve with coupled FE magnetics simulation,
  - Validated the model for use as a design tool and produced extensive documentation,
  - Ran tests on valve geometries that I designed using the model and then machined myself,
  - Halved valve closing time from 10ms to 5ms,
  - Designed a valve with an expected closing time of 3.5ms.

Danfoss / Edinburgh
From 01/2021 to 05/2022

Masters Student Engineer on the Systems Team, From 09/2021 to 05/2022

- Developed a forward-facing model of a tracked excavator:
  - o Developed a CAD model of the excavator in SolidWorks based on collected measurements,
  - o Developed a Simscape model of the excavator including system kinematics and dynamics as well as system hydraulics, engine, controller, and simple driver model.
  - o Conducted tests on the real excavator and collected data,
  - o Tuned model response to match test data,
  - o Created extensive documentation for the model.

Student Placement Engineer on the Systems Team, From 01/2021 to 07/2021

- Developing Simulink models for off-highway vehicles utilising Digital Displacement Technology,
- Carrying out testing on off-highway vehicles, acquiring data using Dewesoft, analysing data in MATLAB,
- Modelling hydraulic system elements using acquired data,
- Coding Plus+1 controllers and optimising them for minimal memory consumption,
- Procuring electrical documentation for an off-highway vehicle,
- Designing and building control boxes for manual manipulation of software variables for testing.

Edinburg University Formula Student / The University of Edinburgh
From 09/2018 to 07/2022

Team Advisor, 2021/22
- Assisting the team with knowledge and experience,
- Facilitating knowledge transfer to new members,

FS Class Manager, 2020/21
- Planning out work, budgeting and overseeing the design and successful manufacture of the car,
- Managing a Team of over 30 people through five managers,
- Designing carbon fibre a-arms,
- Developing a lap time simulator to aid with car development,

Testing Team Manager, 2019/20
- Managing a team of 7 and chairing weekly sub-team meetings,
- Designing and manufacturing a pedal box using MATLAB, SolidWorks and Abaqus,

Testing Team Member, 2018/19
- Testing data analysis using MS Excel,
- Designing and manufacturing devices to measure camber and toe on the car.
- Extensive work on the car in May, June, and July 2019.

Intern at repair shop / Authorised BMW repair shop in Gdynia, Poland
From 06/2018 to 07/2018

Achievements and extracurricular activities
- Best game award (Python) / Hello World Hackathon 2019, Edinburgh / 03/2019
- Tutor / EngPALS, The University of Edinburgh / From 09/2018 to 06/2019
- Odyssey of the Mind / High School no.3 in Gdynia / From 09/2011 to 06/2017