Viliam Kacerik

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EDUCATION

MEng in Mechanical Engineering, University College London, United Kingdom — Sep. 2019 – To this date

- 3rd Year Individual Project thesis title: *"Design and development of ground effect aerodynamics for the 2023 UCL Formula Student car"*
- Course: Mechanical Engineering with Business Finance and Year in Industry: 2nd year grade: 81.8%. Main modules: Fluid Mechanics, Thermodynamics, Solids and Structures, Design and Professional Skills, Materials, Mathematical Modelling and Analysis.

Lycée Kleber, Strasbourg, France — Sep. 2018 – Jun. 2019

- "Classe Preparatoire" in PCSI (Physics, Chemistry, Sciences of Industrial Engineering).

Institution Sainte Marie, High School, Belfort, France — Sep. 2012 – Jun. 2018

- French Baccalaureate (2018) - series S, including further physics and advanced English, achieving the "mention tres bien" with an average grade of 17.28/20, 19/20 in physics and 18/20 in mathematics.

Bilingual High School, Metodova 2, Bratislava, Slovakia — Sep. 2013 – Jun. 2019

PROFESSIONAL ENGINEERING EXPERIENCE

Mechanical Engineer, **Mercedes-AMG High Performance Powertrains**, Brixworth, UK — Sep. 2021 – Sep. 2022

- 12-month mechanical engineering placement at Mercedes-AMG HPP – design and manufacture Formula 1 Powerunits for Mercedes-AMG Petronas F1 Team, McLaren Racing F1, Williams F1 and Aston Martin F1.
- Product engineering: Developed, released and proved-out parts for engineering teams (Structural, Bottom-End, Integration, Concept) for the 2022 & 2023 Powerunits to the Mercedes standard using CATIA-V5 and within HPP Design Standard. Supported the research and development of the 2026 Powerunits.
- Fault Containments: Solved mechanical engineering faults by implementing immediate, short-term and long-term containments. Solved process engineering faults by working with the "Methods Engineering Team" and IT by modifying the HPP Design Process and Standard Operating Procedures.
- Responsible for mass tracking of 2022 power-unit for the PU Concept Team.
- Communicated with Trackside Engineering for urgent trackside requests and hardware tracking. Analysed real-world data using ATLAS 9.0 from Dyno and Track to carry out design decisions.

Simulation Engineer, **UCL Team Ventura Medical Projects**, UCL, London, UK — Aug. 2020 – Sep. 2021

- **Dental Equipment Device Project**: Performance validation of concept - carry out compressible steady-state CFD simulations to validate the proof of concept of a device that aims to decrease the transmission of Covid-19 during dental surgeries. Supervised by Prof. Tim Baker and Dr. Rebecca Shipley.
- **CPAP Project**: validate performance using transient CFD simulations of the device to evaluate FiO2% (fraction of inhaled oxygen). Goal achieved: FiO2 > 90% for the first 70% of Tidal Volume. Device aimed at for treating all respiratory diseases in emerging countries thanks to a low oxygen consumption.

National Champions - Product Designer, **IMechE Design Challenge 2021**, London, UK — Sep. 2021

- Won 1st price in 2021 IMechE Design Challenge for a repeatable vehicle in a team of 4 students.
- Delivered a design presentation, bill of materials, detailed CAD model and a design poster in 3 weeks' time.
- Set and achieved internal date targets for design and manufacturing to allow for extensive testing and fine-tuning of the vehicle.
- The repeatable vehicle had to satisfy technical regulations and financial requirements (total cost = £100).

Team Leader, **UCL Racing Clubs**, UCL, London, UK Sep. 2019 – Jun. 2021

- Founded and lead UCL Racing Clubs to provide the upcoming Formula Student members with design engineering skills prior to integration into UCL Racing Formula Student team.
- Held weekly lectures for 50 UCL Racing Club members. Topics covered: 1D calculations, aerodynamic optimisation of design using CFD on SimScale and integration with CAD software for F1inSchools competition vehicles.
- Responsible for recruitment of 50 students. Some of admitted students became leaders of other UCL engineering competition teams: Formula Student, Shell Eco Marathon, UCL Rocket, Team Nova, Mars Rover.

Aerodynamicist, **UCLR Formula Student**, UCL, London, UK Sep. 2019 – Jun. 2021

- Developed the front and rear wing of the 2020 racing car in a team of 3, which produced 600N of downforce at 70km/h. CAD design of the front and rear wing in CATIA-V5 (using Part and Generative Shape Design), CFD simulations in SIMSCALE, post-processing in PARAVIEW.
- Designed additional powertrain components: fuel elbow pipe, air tank fixture.

Product Design Intern, **Matador Automation**, Dubnica nad Vahom, Slovakia Jun. – Sep. 2020

- Designed steel frameworks for Škoda in Mlada Boleslav for rapid robot replacement.
- Produced technical drawings within the Volkswagen Standard of parts for the assembly line of the next-generation Porsche Macan.
- Designed custom onsite factory improvements for Matador Automation – camera holders, workbenches

FURTHER WORK EXPERIENCE

Part-time Laboratory Assistant, **UCL MechSpace**, UCL, London, UK Jan. – Mar. 2020

- Supported students with operating laboratory equipment (3D printers, laser cutters, CNC machines), 6h/week.

Transition Mentor, **University College London**, London, UK Sep. 2020 – Jun. 2020

- Supported first-year students to integrate into university and mechanical engineering department by providing help and advice on academic topics, UCL support services and administrative tasks.

Voluntary Tutor, **Institution Sainte-Marie High School**, Belfort, France Sep. 2015 – Jun. 2017

Intern, **IKEA Industry**, Lure, France Mar. 2014

Student, **Art School**, Bratislava, Slovakia 2006 – 2011

ADDITIONAL INFORMATION

- **Languages**: English (fluent), French (fluent), German (advanced), Slovak (native)
- **Achievements**: 1st Price in Concours d'eloquence (speech contest) in German, organized by the Lion's Club in 2017 on the topic: "You can't get very far until you start doing something for someone else"
- **Interests-sports**: Olympic Weightlifting (member of the UCL Barbell Club)
- **Product Design Software Skills:** ANSYS FLUENT, ATLAS 9.0, SIMSCALE, PARAVIEW, CATIA V5 (Part Design, Generative shape design, Surface Modelling, Technical drawings, Products), Autodesk Fusion 360
- **Further IT Skills:** Python programming, MATLAB, MS Office
- **Link to Personal Engineering Portfolio:** www.viliamkacerik.com

References available on request