Olivier Hinds

Mechanical Engineering Student | Commercial Software and Consulting Experience
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Summary

Second-year BEng Mechanical Engineering student at the University of Sussex with hands-on CFD, FEA, MATLAB/Simulink controls, SolidWorks, and workshop experience. Combines engineering simulation and data analysis with Arup energy infrastructure advisory exposure and four years delivering production software systems. Interested in mechanical, energy, and infrastructure roles where modelling, technical analysis, and practical delivery overlap.

Education

University of Sussex | BEng Mechanical Engineering

September 2024-present | Brighton

- First year average: 71% (First class).
- Key modules: Strength of Materials, Electromechanics, Design for Manufacture, Numerical Modelling and Engineering Simulations (ANSYS Fluent/Mechanical), Systems Analysis and Control (MATLAB/Simulink).
- Final year project confirmed for 2026: Deep Learning for Sprays and Laser Measurement Techniques, developing machine learning models for high-speed Phase Rainbow Refractometry spray images with combustion and industrial spray applications.

King Edward's School Witley | A-Levels: Physics, Maths, Computer Science

September 2022-August 2024 | Witley

- EPQ: How Cellular Automata Have Contributed to the Study of Complex Systems in Today's Society, examining the development and applications of cellular automata across STEM and urban planning.
- STEM Ambassador for Computer Science, 2023-2024. Coordinated events and ran competitions for students.

Technical Skills

Mechanical and simulation: SolidWorks; ANSYS Fluent/Mechanical; RANS CFD; finite element analysis; grid convergence; MATLAB/Simulink; controls; design for manufacture

Software and data: Python; TypeScript; React/Next.js; Appwrite; LaTeX; statistical analysis; machine learning and LLM system design

Systems and delivery: Git/GitHub; cloud hosting; Linux servers; production operations; APIs and integrations; technical consulting; client delivery

Professional strengths: Dedicated and motivated; identifying and prioritising requirements; efficiently operating production systems; developing and defining technical solutions; ensuring reliable delivery; championing good practice; advising stakeholders; leading projects

Selected Engineering Work

- Simulated 2D turbulent backward-facing step flow at Re_h = 5100 in ANSYS Fluent using SST k-omega RANS; seven-mesh grid study showed mesh independence from approximately 23,000 cells, with reattachment length overpredicting DNS by 5.4%.
- Solved a planar pin-jointed truss in MATLAB as Ax = b and validated against ANSYS truss and beam-element models; investigated nonlinear Belleville washer force-deflection behaviour using analytical, 2D axisymmetric FEA, and 3D FEA models with grid convergence.
- Completed MATLAB bridge-truss design and built a physical two-propeller control system using PID and feedback loops to stabilise thrust and angle; manufactured a brass and stainless steel hammer using cutting, milling, and threading processes.

Experience

Arup | Intern, Business and Investor Advisory

June 2024 | London

- Analysed historical operational data for nuclear power plants in Excel, identifying daily efficiency and throughput patterns to support energy infrastructure advisory work.

- Prioritised and compared BESS technologies using capex, opex, operating characteristics, and investment-readiness criteria for infrastructure due diligence.
- Researched and consolidated power-plant datasets, developing the team's reference base for energy-sector analysis and advising on data quality.

Unified Projects Ltd. | Director and Project Lead

2024-present | Guildford

- Founded and lead a technical consultancy spanning software and engineering, advising 25+ clients across healthcare, logistics, education, and energy.
- Efficiently operate production systems across UK, French, and German servers with 99.9% uptime, ensuring on-call response, hosting contracts, APIs, integrations, and scalability planning.
- Green Web Foundation-certified technical consultancy; Microsoft AI Cloud Partner Programme member.

Sussex Racing (Formula Student) | Battery Design and Low Voltage Systems

2024-2025 | Brighton

- Investigated battery cooling layouts using Peltier modules, comparing cell arrangements to optimise airflow and thermal management.
- Designed SolidWorks components for the chain shroud and cover between engine and rear axle, alongside surrounding bodywork packaging.
- Championed GitHub version control and refactored scattered low-voltage codebases into a maintainable structure.

City of London Corporation | Co-Founder, Youth Natural Environment Board

2024-present | London

- Co-founded a youth board aligned with the City of London Corporation's Net Zero Strategy, focused on green skills and sustainability leadership.
- Developed the Green Futures Challenge, a London-wide schools sustainability competition with E.ON, launched through the City of London Green Skills Hub.

Audico | The Digital Line | Software Engineer

2022-2025 | Remote

- Deployed voice-activated solutions using Alexa Skills Kit for hospitality and stadium environments including Royal Ascot and the 2023 Rugby World Cup.
- Built interactive ordering and concierge systems for food, betting, and guest services.

Projects

Car-Go | Live load-sharing logistics platform

2024-present

- Developed and defined a live logistics platform matching freight demand with spare vehicle capacity, including tracking, load matching, compliance tooling, and payment workflows.

Varalign | Live healthcare appointment platform

2024-2025

- Developed a live healthcare booking platform aggregating 100+ UK providers, prioritising hybrid automated and staff-assisted booking workflows and NHS BaRS engagement.

Unified Education | AI learning and safeguarding platform

2025-present

- Developed a school-hosted AI safeguarding platform used by two schools, defining a three-layer risk pipeline combining keyword clustering, sentiment/context analysis, and an LLM judge layer.
- Engaging with University of Surrey, Royal Holloway, UKRI, and partner schools on research around the platform.

Volunteering

Barrow Hills School | Teaching Volunteer

2022-2023 | Godalming

- Worked with Year 8 students, teaching physics and computer science.

Languages

English: Native
French: Professional working proficiency