

Daniel Jakob

Curriculum Vitae

Bray

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Education

- 2021–2023 **Master's Mechanical Engineering**, *University College Dublin*, Award GPA: 3.34.
Relevant Modules: Fluid Mechanics III, Mechanics of Solids III, Process Control, Numerical Algorithms, Fracture Mechanics, Computational Continuum Mechanics II, Engineering Thermodynamics III, Energy Systems and Climate Change,
Dissertation: Optimising the Hybrid Operation Temperature Window of a Hybrid Heating System (air-to-water heat pump + gas boiler) in the Irish Climate [\[GitHub\]](#) [\[PDF\]](#).
- 2018–2021 **BSc. Mechanical Engineering**, *University College Dublin*, Award GPA: 3.66.
Relevant Modules: Material Science II, Applied Dynamics II, Multivariable Calculus Eng II, Mechanical Engineering Design II, Heat Transfer, Linear Algebra for Engineers, Statistics & Probability, Modelling & Simulation, Comp. Sci. for Engineers II,
Projects: Rotating Disc Electrodeposition Device with Ultrasonic Agitation design group project. Skills developed: CAD Skills, Presentation skills and animation/directing skills.
- 2012–2018 **Secondary School**, *Presentation College, Bray*, *Leaving Cert. Points – 543*.
H1 – German, H2 – Design Communication Graphics, Physics, Geography.

Experience

- Jan 2022 – **Engineering Intern**, JONES ENGINEERING, Intel Campus, Leixlip.
Aug 2022 Aided tradesmen on-site by navigating the 3D Navisworks digital twin model of the Fab34 site. Created many tools to help the engineering team, in particular, a comprehensive search-engine-like tool and accompanying interface that merged data from four sources, significantly reducing time required to get info on a particular pipe/duct. Led a data-science-driven investigation into missing isometric drawing files, developing a large data model in PowerQuery and PowerBI.
- Jun 2021 – **Part-Time Waiter**, BOOMERANG BAR, Bray.
Dec 2021 Part-time waitering staff at a family owned wet pub. Tasks included: serving drinks to customers, money collection, daily set-up and cleaning.
- Oct 2018 – **Part-Time Waiter**, LANA ASIAN STREET FOOD, Bray.
Mar 2020 Created and developed an Excel spreadsheet which sped up end-of-day closing dramatically. Part-time waiter in an Asian/Thai food restaurant chain. Tasks included: waitering service, end-of-day cash register balancing, cleaning, coffee making, cashiering, taking in and signing off wholesale deliveries, dealing with customer complaints and on occasion, managing the floor. Shared a key to the premises with a fellow part-time waiter.
- Aug 2018 **Attendant**, HELL-&-BACK.
Guided participants and supervisor for a weekend at Hell-&-Back as an attendant in the car park and the course.
- Jun 2017 **Attendant**, JUNIOR & LEAVING CERT.
3 weeks worked as a Junior and Leaving Cert. attendant in Presentation College.

Awards

- 2022 Safe Pass construction site permit
- 2021 IACT Working Safely For Employees in Pubs Cert. and Manual Handling Thoery
- 2018 Lifeguard Rescue Level 3 Award
- 2018 First Aid training course and BLS training
- 2017, 2018 5th and 6th year Academic Excellence in German
- 2017 Level 3 Kayaking Award
- 2016 Level 2 Diving Award
- 2013–2017 3× Spirit of Pres Award
- 2012–2018 3× Excellent Attendance Award

Computer skills

- Basic JavaScript/JQuery, Adobe Photoshop, PHP, SQL, R, AHK, Docker, C & C++
- Intermediate SolidWorks, Autodesk Inventor, HTML, CSS, Git, (Arch) Linux, PowerQuery+M-code, PowerBI, EnergyPlus, Python+Jupyter Notebooks
- Advanced L^AT_EX+friends, Excel+VBA, MATLAB, Modelica

Recent Dev. Projects

- Python [\[Link\]](#) Features: numerical optimisation, API calls, computer vision, geospatial interpolation, geometric transformations, automated unittesting with GitHub CI/CD.
- Python [\[Link\]](#) Features: API requests and reponses, data manipulation and interpretation, data visualisation via composite image generation
- CI/CD [\[Link\]](#) Features: automatic website deployment for documentation, CI workflows to replace a Makefile for compiling Protocol Buffer to various common languages, generate corresponding documentation
- Machine learning [\[Link\]](#) Features: RandomForestClassifier machine learning with scikit-learn and pandas libraries, feature extraction and engineering from time series, model training and prediction, data manipulation and visualisation

Communication Skills

- Video Editing Edited two short videos for college design projects.
- 3D Animation Created Autodesk Inventor animations of models with programmatic motions and driven assemblies.
- Presentations Presented many small projects and dissertation to peers and professors.
- Technical Writing Wrote dozens of technical reports for college projects and my dissertation, including the creation of technical and complex, code-based programmatic diagrams.

Languages

- English **Mother tongue**
- German **Proficient**