

KAIS ALHASAN

M.Sc. Mechanical Engineering student, Design Automation & Product Development
Linköping, Sweden · kais.alhasan01@gmail.com · linkedin.com/in/kais-alhasan · github.com/kaisalhasan01

PROFILE

Final-year M.Sc. Mechanical Engineering student at Linköping University (Design & Product Development) who builds tools that automate engineering work, from reinforcement-learning agents that route cables through CAD geometry to CATIA layouts generated from a form. Four summers in industry at Scania and Väderstad, plus parallel studies in Business Administration. Seeking a 30-credit master's thesis in design automation, optimisation or applied machine learning from January 2027.

EXPERIENCE

Väderstad AB, Junior Engineer, VJET programme / *Väderstad* Jun 2025, Sep 2025

- Redesigned dozens of seed-drill components in Creo Parametric for function and manufacturability, getting each change approved together with production and operations.
- Designed custom mounts that let additional GPS systems be fitted to the seed drills, widening the range of precision-farming setups the machines support.
- Standardised components across several product lines to reduce part variants as part of the department's cost-efficiency programme.

Scania Group, Summer Intern, SNDP Processes & Methods / *Södertälje* Jun 2024, Aug 2024

- Revised several process documents governing the interface between suppliers and the procurement department; the updated documents were implemented by the department.
- Consolidated Automotive Process Manuals through a structured gap analysis, aligning procurement processes across Scania's global organisation with its future goals.

Scania Group, Production Intern, SIP programme / *Södertälje* Summers 2022 & 2023

- Built the tool register for the 6-cylinder and V8 engine departments and added cost and lifespan data for V8 tooling to support replacement planning.
- Updated quality-control documents (tolerances, formats) and linked each process step to its tools.
- Analysed the gap between current state and Scania P&L's 2025 vision and presented the findings to the management team.

Other: Alarm Operator, Verisure (2025) · Laboratory Technician, SGS (2024-25) · Assistant (freelance), Mälarstrandens Bostäder, introduced e-signing of rental agreements (2021-24) · Caregiver, Linköping and Arboga municipalities (2019-24).

ENGINEERING PROJECTS

Cable Routing with Reinforcement Learning / *Unity ML-Agents (PPO), C#, Python, ONNX* 2025, 2026

- Built RL agents that route cables through voxelized 3D CAD geometry while respecting minimum bend radius and never crossing other cables; started in the course Design Automation (TMKU01) and rebuilt independently from scratch.
- Raised success on 90 long routes through an engine bay the agent never trained on from 50 to 85 (replicated 84/90, paired McNemar $p < 0.0001$) by adding all-round ray perception and planner-guided routes; halved steering jitter.
- Benchmarked against a classical planner (90/90) and identified multi-cable routing as the case where learning can outperform pure geometry.

Factory Layout Planner / *C#, .NET, Unity* 2026

- Built a tool that plans a production line in four checked steps and turns the blueprint into a running 3D line; on 2,700 random layouts it routed 97 to 99 % of conveyors with zero rule violations (36 unit tests).

Car Deal Finder & Buyer Advisor / *Python, SQL, Power BI, Streamlit* 2026

- Values used cars against comparable listings with a hierarchical hedonic regression (80 % prediction intervals) on a SQLite star schema and ranks them by fit and total cost of ownership.

Driving-Test Slot Monitor, e-mail alerts for cancelled slots; got my test weeks earlier / *Python, Selenium* 2025

EDUCATION

Linköping University, M.Sc. in Mechanical Engineering (300 ECTS) / *Design & Product Development* 2021, Jun 2027 (expected)

Relevant courses (grade, scale 3-5): Design Automation of Customized Products (4), Collaborative Design Optimisation (5), Additive Manufacturing (5), CAD & Technical Drawing cont. (5), Design Optimisation (4), Conceptual Design (4), Product Modelling (CATIA), Advanced CAD, AI & Machine Learning, Mechatronics, Control Engineering.

Linköping University & Stockholm University, B.Sc. Business Administration / *parallel studies* 2025, Jun 2027 (expected)

Accounting, finance, marketing, organisation, economics and statistics.

LEADERSHIP

- Wrestling coach, IFK Linköpings Brottarklubb (2024, present): lead weekly training for groups of 10-14 children aged 6-12.
- Eldsjäl 2.0, RF-SISU & Folkspel (2025, 2026): national leadership programme (~120 h); my project introduced 141 school children in a low-participation area to wrestling.

SKILLS

CAD: CATIA V5, Creo Parametric, SolidWorks, Ansys Discovery

Programming & ML: Python, C#, VB.NET, C++, MATLAB · Unity ML-Agents (PPO), ONNX Runtime, NumPy, TensorBoard

Data & tools: SQL, Power BI, Excel, Git, LaTeX

Languages: Swedish (fluent), English (fluent), Arabic (native)