

AURÉLIEN PONS

Mechanical Design Engineering | Composites, FEA & Vehicle Integration

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SUMMARY

Three years of hands-on Formula Student engineering across Australia, the Netherlands and Germany, completed alongside a full degree. As a final-year Mechanical Engineering student (graduating 06.2027), my skills cover carbon fibre design and manufacture, FEA, Siemens NX, testing and validation, and Python automation.

SKILLS

- **CAD & Design Engineering:** Siemens NX (primary), SolidWorks (basic), mechanisms and actuation, packaging, engineering drawings
- **Composites & Manufacture:** carbon fibre layup, autoclave and resin cure, mould tooling, ply nesting, FiberSim
- **FEA & Engineering Fundamentals:** hand calculations, Altair HyperMesh / OptiStruct, laminate design, correlation to test data
- **Testing & Validation:** 3-point bending, push-through tests, purpose-built rigs
- **System Integration:** balancing requirements across subsystems, working from rules and constraints, documenting the process
- **Software:** Python, MATLAB, Power BI, Excel

EXPERIENCE

Structural Design Engineer (FEA)

09.2025 to Present

Écurie Aix, Formula Student Team, RWTH Aachen

- Owned monocoque torsional stiffness development: raised it by 75% for 35% more mass, using hand calculations to set up the FEA load case
- Rear wing FEA gave 11% less mass than the previous year and passed the rules check
- Identified a resin-starvation risk through self-initiated research and good engineering practice
- Followed a documented engineering process from requirements to constraints and preferences

Chassis Design Engineer (Composites)

09.2024 to 02.2025

University Racing Eindhoven

- Designed a carbon fibre monocoque from a clean sheet in Siemens NX, packaging ergonomics and harness positions around other systems
- Validated laminate calculations in real-life three-point bending tests on carbon fibre panels
- Resolved an integration issue by reorienting switches using bending-radius data from the electrical team
- Designed mould tooling for demouldability (3° draft, alignment features)

Team Lead of Aerodynamics

06.2023 to 03.2024

Formula SAE, University of Technology Sydney

- Manufactured a carbon fibre and Kevlar diffuser, accounting for material properties under bump loads and floor strikes

Linear Actuation System for a Robot

Warman Competition

Mechanical Design Fundamentals Studio, University of Technology Sydney

- Designed and built a DC-motor linear actuator with a guardrail; it was precise, fast and passed its design requirements, including payload

Business Intelligence & Automation Developer

2023 to Present

Oceania Distribution (part-time)

- Built a Python pipeline to refresh Power BI dashboards; flagged over NZ\$2M in potential lost sales

EDUCATION

Bachelor of Engineering, Mechanical, Charles Darwin University

07.2025 to 06.2027 (Expected)

Faculty Academic Excellence Award for a thesis on off-grid thermal comfort for a remote community in Cape York, Australia

Bachelor of Engineering (Honours), Mechanical, University of Technology Sydney

02.2023 to 07.2025

Transferred to Charles Darwin University in 07.2025, credits recognised

Grades: Engineering Computations 90%, Materials and Manufacturing Engineering A (High Distinction), Mechanical Design Fundamentals Studio 1 (High Distinction)

Languages: English (Native), French (Native), German (A2, learning)