Ethan Teoh - Mechanical Engineering

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Final-year Mechanical Engineering student seeking a **graduate role** to leverage R&D and product development experience in a challenging engineering environment. Committed to applying strong problem solving skills, practical manufacturing knowledge, and a passion for sustainable design to deliver innovative solutions and support cutting edge developments.

EDUCATION

The University of Auckland **Feb. 2023 – Nov. 2026**
Bachelor of Mechanical Engineering (Honours) *Auckland, New Zealand*

EXPERIENCE

Mechanical Engineer Intern **Nov. 2025 – Feb. 2026**
BLUELAB — On-Site, Full-Time *Tauranga, New Zealand*

- **Designed and prototyped** a new suite of accessories for Bluelab handheld devices (Combo Meter, Pulse Meter, Pens), utilizing **SolidWorks** and **Autodesk Inventor** to create complex surface models and assemblies.
- **Established in house capabilities** for printing flexible TPU materials by optimizing 3D printer parameters, reducing lead times for functional impact resistant prototypes.
- **Conducted on site user research** with growers to define ergonomic requirements, directly translating field feedback into design improvements for device retention and protection.
- **Performed a detailed Design for Manufacture (DFM) analysis and injection molding study,** obtaining supplier quotes to evaluate the cost benefit of transitioning 3D printed prototypes to mass production.
- **Designed and fabricated** a custom production jig for the Bluelab Truncheon, improving assembly repeatability and reducing operator handling time on the manufacturing line.
- **Executed drop testing protocols for Bluelab Pens,** analyzing failure modes and impact data to engineer a protective top cap that significantly reduced sensor breakage risks.
- **Delivered a comprehensive end of internship presentation** to the engineering leadership, synthesizing three months of R&D work into strategic recommendations for accessory product lines, manufacturing feasibility, and additive manufacturing investments.
- **Investigated the feasibility of transitioning EC probes to titanium electrodes,** designing IP68-rated concepts aimed at eliminating complex potting processes and reducing assembly line cycle times.

Teaching Assistant (MECHENG 299) **Mar. 2025 – Present**
THE UNIVERSITY OF AUCKLAND — On-Site, Part-Time *Auckland, New Zealand*

- **Lead instructional sessions** and guided second-year Mechanical Engineering students in prototyping and fabrication, with a focus on brushless DC motor design, assembly, and testing.
- **Delivered hands-on training with mills, lathes, and welders** while ensuring adherence to strict workshop safety protocols.
- Mentored students through iterative design and fabrication processes, building confidence with industry standard tools while developing independent troubleshooting skills.

Power Gardens Team Member **Dec. 2024 – Mar. 2025**
MITRE 10 — On-Site, Full-Time *Auckland, New Zealand*

- **Developed skills in technical problem-solving, customer communication, and inventory management** in a fast-paced retail environment.
- Worked in the Power Garden department, assisting customers with troubleshooting, maintenance, and product selection of power tools and mechanical equipment.
- Used inventory management systems to track stock levels, improving efficiency in supply chain processes.

TECHNICAL SKILLS

CAD & Simulation: SolidWorks, Autodesk Inventor, Fusion 360, ANSYS (FEA), MATLAB
Manufacturing: Additive Manufacturing (FDM and SLA), Design for Manufacture (DFM), Injection Molding Design, Workshop Machining (Lathe, Mill, Welding)
Documentation & Tools: Atlassian Confluence, Technical Report Writing, MS Office Suite
Design Process: User Centered Design, Field Research & Interviewing, Rapid Prototyping, Product Testing

EXTRACURRICULAR

Aeronautics Club (UAC) **Mar. 2025 – Jun. 2025**

Wings Team Member *The University of Auckland*

- As part of the wings team, I am involved in the design and construction of a lightweight, high-performance wing for a human-powered aircraft.
- Shaping and selecting aerofoils for favorable stall characteristics and overall wing stability.
- Collaborating with other sub-teams to align structural design with performance goals

Formula SAE (FSAE) **Feb. 2023 – Jan. 2024**

Mechanical Team Member *The University of Auckland*

- Specialised in the fabrication and machining of compact in-house components for the Formula SAE competition vehicle.
- Gained hands-on experience with the mill, lathe, drill press, drop saw, and various hand tools.
- Assisted with final part production, vehicle maintenance, and troubleshooting during the 2023 Formula SAE competition in Australia.
- Contributed to the successful preparation and performance of the vehicle under tight deadlines and high-pressure conditions.

Cost Team Member

- Costed individual vehicle components based on CAD models, accounting for materials, manufacturing processes, and assembly methods.
- Gained practical insight into component design, fabrication, and real-world manufacturing considerations.
- Represented the team at the 2023 Formula SAE competition in Australia, presenting the cost report alongside two teammates to industry judges.

PROJECTS

Additive Manufacturing & Technical Prototyping | *FDM, Slicer Optimization* **March 2025**

- **Machine Calibration & Maintenance:** Manage and maintain a personal FDM 3D printer, performing upgrades to ensure high precision output.
- **Material Selection:** Developed specialized printing profiles for a range of polymers including **PLA, PETG, and TPU**, optimizing extrusion temperatures, retraction settings, and cooling for functional mechanical parts.

Formula SAE M023 | *Autodesk, Precision Machining* **February 2023**

- **Mechanical Design & Fabrication:** Contributed to the development of the **M023** fully-electric race car, focusing on the design and manufacture of high-performance components for the Mechanical team.
- **Precision Machining:** Manufactured critical components using manual lathes and mills, maintaining tolerances to ensure assembly fitment and structural integrity.
- **Performance Optimization:** Utilized **Autodesk** to iterate designs for weight reduction and stiffness, successfully balancing performance requirements with manufacturing constraints (DFM).
- **Collaborative Engineering:** Worked within a multi-disciplinary team to meet strict competition deadlines and technical regulations, participating in full-vehicle assembly and testing phases.

Vehicle Restoration & Modification | *Mechanical Diagnostics, System Overhaul, Hand Tools* **October 2021**

- Undertaking comprehensive mechanical restoration and performance modifications on various car and motorcycle projects.
- Demonstrated an mechanical intuition through the hands on restoration of vehicles, establishing a practical technical base that preceded my engineering studies.
- Identifying and resolving complex engine, suspension, and drivetrain failure modes using technical service manuals and logical fault tracing.
- Executing subsystem overhauls (cooling, braking, and ignition) while following **OEM torque specifications** and engineering tolerances to ensure mechanical reliability.

INTERESTS

- Aeronautics, Automotive, Motorsport (UAC & FSAE)
- Travel, Hiking (AUTC)
- Gym (AUSS)
- Snowboarding (UASC)
- Badminton (UABC)
- Martial Arts (AUMT & UOABJJ)
- Academic (MECHA)
- Cooking
- Music

References Available Upon Request