TIAN MA

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EDUCATION

University of Waterloo — Waterloo, ON
Bachelor of Applied Science in Mechatronics Engineering — *Sept. 2025 – Apr. 2030*
Cumulative Average: 93.46
Relevant Coursework: Data Structures & Algorithms, Circuits, Statics, Structures and Materials

EXPERIENCE

Mechanical Design Student | *Creo Parametric, Windchill PLM, Excel* — Jan. 2026 – Apr. 2026
Turn-Key Modular Systems — *Oakville, ON*

- Managed the production and release of **200+** fabrication and general assembly drawings for large-scale pharmaceutical projects
- Optimized PLM workflows by **30%** through automating batch exports and Windchill version control protocols
- Validated skid design against client **P&ID** diagrams ensuring 100% compliance with client standards
- Designed modular skid frames adhering to **DFM principles** to reduce fabrication complexity and cost

Coreless Composite Airfoil R&D | *Star-CCM+, SolidWorks* — Sept. 2025 – Present
University of Waterloo Formula Electric — *Waterloo, ON*

- Developed low cost composite manufacturing techniques aimed at reducing aerodynamic package weight by **40%**
- Leveraged lost-core manufacturing and 3D printed design to reduce fabrication cost by **20%** compared to traditional moulded components
- Fabricated and validated small-scale lofted carbon-fiber airfoils to be upscaled and implemented into future aerodynamic packages

PROJECTS

RC Plane | *C++, SolidWorks, Star-CCM+* | github.com/TianMa7/RC_PLANE

- Led a 3 member team to design a 100cm wingspan aircraft, balancing resource distribution and providing guidance on overall mechanical design
- Achieved **16%** reduction in weight and a **7:1** lift to drag ratio by optimizing topology in **SolidWorks** and validating aerodynamic performance in **Star-CCM+**
- Coordinated procurement of materials and hardware, managing delays and changes in scope while reducing overall cost by **45%** compared to preexisting models
- Implemented PID control loops using **ESP32 and ESP-IDF** to process IMU data for real-time stabilization and flight control
- Optimized aircraft maneuverability by centralizing servo placement, reducing rotational moment of inertia by **7%** and improving control loop responsiveness

Autonomous Card Dealer | *C++, Git* | github.com/TianMa7/CardDealingRobot

- Led a 4 member team to prototype a mobile robot capable of dealing **20% faster** than human dealers through optimized pathfinding
- Managed project timeline and resource distribution to complete project **2 weeks** ahead of schedule
- Implemented encoder-based odometry to facilitate precise closed loop navigation, reducing positional drift by **30%**
- Fabricated card dealing mechanisms designed to reliably eject individual cards with less than a **1%** error rate

TECHNICAL SKILLS

Languages: C/C++, Python
Embedded & Firmware: ESP-IDF, FreeRTOS, ESP32, Soldering
CAD/CAE/PLM: Creo Parametric, SolidWorks, Star-CCM+, Windchill PLM, AutoCAD
Software & Data: Git, CLion, PyCharm, Excel, NumPy, Pandas, Bokeh
Design Concepts: P&ID, Design for Manufacturing, Object Oriented Programming