Qichen Eric Dai

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Experience

2020 & 2021, May - Aug
Design Engineer Intern, *Legere Reeds*

- Renovated design procedures of synthetic double reeds.
- Used **Fusion360 and MeshLab** to create digital reed surface models.
- Used **Python** to **preprocess**, **normalize** and **interface** scanned reed models to design files for manipulation.
- Created a **Surface Sampler** using **Python** and **NumPy-STL** library to create evenly spaced sample points on non-homogenous scan file surfaces.
- **Integrated** CAD and CAM procedures during **collaboration with colleagues.**

2021 Sept - Present
Spacecraft Dynamics Engineer
University of Toronto Aerospace Team
Space System Division

- Developing **Trajectory Analysis** and **Attitude Control System** for **Nanosatellite** mission.
- Developing **Numerical Solver** for optimizing attitude of spacecraft during imaging process.

2021, Sept - Dec
Electrical Engineer, *ESC204 – Praxis III*
Engineering Design Course

- Implemented a **DC motor** to control rotation of an extrusion screw for proxy melted plastic experiment
- Used **RP2040 microcontroller** along with **A4988 Motor Driver**, controlled via **CircuitPython**.
- The motor rotates in **Different Speeds** and **Directions**. States can be changed via a **Button**. **LEDs** are also implemented to indicate current mode of operation.

2019 Sept – 2021 Jun
Oboist, *Toronto Symphony Youth Orchestra*

- **Principal Oboist** in 2020/21 season.
- **Principal English Hornist** in both seasons.
- Performed two concerts live with recognizable **solos.**
- Demonstrated **leadership** within woodwind section.
- Demonstration of **time management** between schoolwork and extracurricular activities.

Education

2019-2024 (projected)
Candidate **BASc.** in
Engineering Science
Aerospace Option
University of Toronto
cGPA: 3.8/4.0

Relevant courses

- Ordinary Differential Equations
- Partial Differential Equations
- Linear Algebra
- Scientific Computing
- Aerodynamics/Gas Dynamics
- Classical Mechanics/Dynamics
- Digital and Computer Systems
- Praxis I, II and III

Technical Skills

- Coding in: **Python**, **MATLAB**, C, Verilog, and Assembly Language
- CAD: **Fusion360, MeshLab**
- **Microcontroller, Motor Drivers,** and **CircuitPython**
- Proficiency in **Microsoft Excel & Word**
- Proficiency in Python packages including **PyTorch** and **Numpy**
- **Optimization**
- **Numerical Solver**
- **Design Engineering** and **Integration**

Soft Skills

- **Initiative for Challenges**
- **Teamwork** and **Collaboration** with team/other subsystems
- Good **Time Management** between multiple projects
- **Quick Adaptation** to new environment and schedule changes
- **Curiosity** about different subjects
- **Leadership** within teams