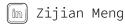
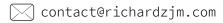
Richard Meng











EXPERIENCE

HANON SYSTEMS CANADA | MECHANICAL ENGINEERING INTERN

May 2021 - June 2022 | Belleville, Canada

- → Developed and organized the builds of fluid transport prototypes for automotive HVAC. Work included projects for electric vehicles from Ford, GM, and Lucid.
- → Applied thermodynamic, engineering, manufacturing, and design knowledge to coordinate with technicians and take hands-on action.
- → Completed 342 prototypes build requests under historically high demand.
- → Exercised communication and teamwork skills with multi-disciplinary teams including manufacturing engineering, quality assurance, prototype technicians, CAD designers, and logistics.
- → "Best engineering intern in the history of Hanon Belleville" (Reference on request)

OUEEN'S BAJA SAE OFF-ROAD VEHICLE DESIGN TEAM

September 2019 - March 2020 | Kingston, Canada

- → Researched, designed, manufactured, and tested the vehicle's anti-roll bar.
- → Utilized computer models and finite element methods to tune the bar rigidity and help minimize mass within safety constraints.
- → Robust and adaptable design: the 2022-2023 vehicle still uses our design.

PROJECTS

MACHINE LEARNING INTERATOMIC POTENTIAL TRAINING | PYTHON, HPC, SHELL

- → Training of a force field for molecular dynamics simulations on potassium metal.
- → Computation of a quantum mechanical dataset for training (active and passive). Validation against the dataset and physical property prediction.
- → HPC simulations on Compute Canada clusters
- → Pre-processing and refinement of the datasets and model hyperparameters.

CFD-DRIVEN REDESIGN OF STEAM MANIFOLD: CONDAIR INC. | PYTHON

- → Currently developing a computational fluid dynamics model to analyze Condair Inc's short absorption manifold and propose design optimizations.
- → Application of open-source solvers and theoretical knowledge in a team project, with constant communication with the client and adaptation to their needs.
- → Development of a Python or web-based UI for Condair's internal usage.

PIN-JOINTED STRUCTURE SIMULATOR | PYTHON, REACT, TYPESCRIPT

- → Interactive web app simulating user-defined structures under gravitational load.
- → Stress and displacement calculations by numerical energy optimization method.
- → Customizable strucuture properties; presets and JSON load/save system.
- → Prototyping and iterative improvement in Python; final build in TypeScript (React).

LISTEN TO THE PATH: HACKATHON WINNER | C#, UNITY

- → Developed a procedural maze game with support for the visually impaired. All information for positioning and movement can be obtained soley off sound cues.
- → Maze generation using depth-first search. Optional voice-controlled movement.
- → Creative problem solving and teamwork under time constraints (24hrs).
- → The team won "Best Game" and "Best Hack" (project) out of over 200 participants.

OBJECTIVE

Graduating student with a proven academic and professional track record. Looking to transition into computational sciences or software engineering through academic research, work experience, and personal projects. Looking for a summer internship before entering co-supervised MASc (Mech + ECE).

See website for more about projects, experience, and skills.

SKILLS

CAD

SolidWorks • Solid Edge

PROGRAMMING

Experienced: Python

Familiar:

Bash • Git • C# • C++ •
Javascript • TypeScript •
HTML • CSS

LIBRARIES/FRAMEWORKS

React • SciPy • Pandas • NumPy

EDUCATION

QUEEN'S UNIVERSITY

MASc Co-Supervised: Mechanical and Computer Engineering

Sep 2023 | Kingston, Canada

BASc Mechanical Engineering

Sep 2018 - Present | Kingston, Canada Cum. GPA: 4.19 / 4.3