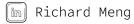
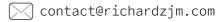
# Richard Meng











# **EXPERIENCE**

PRODUCT ENGINEERING INTERN | R&D FLUID TRANSPORT, HANON SYSTEMS CANADA May 2021 - June 2022 | Belleville, Canada

- → Developed and organized the builds of fluid transport prototypes for automotive thermals. Work included projects for electric vehicles from Ford, GM, and Lucid.
- → Applied engineering and design knowledge, testing, prototyping.
- → Completed 342 prototype build requests under historically high demand.
- → "Best engineering intern in the history of Hanon Belleville" (From Available Ref. Ltr.)

# LEAD LAB TEACHING ASSISTANT | ENGINEERING GRAPHICS

Fall 2023, 2024 | Kingston, Canada

- → Led and organized 2 other TAs in lab sessions of more than 80 students.
- → Performed live Solidworks demonstrations, presenting and explaining content.
- → Supervision of students, mentorship of smaller groups, tutorials, and marking.

# RESEARCH AND PROJECTS

# SMALL-CELL TRAINING OF ML MOLECULAR DYNAMICS DESCRIPTORS

PYTHON | MOLECULAR DYNAMICS, MACHINE LEARNING, HPC

- → Winner of L. M. Arkley Prize, Submitting to Computational Materials Science.
- → An accelerated active learning approach to circumvent the superlinear scaling of atom count during training set generation.
- → Our training protocol achieves up to 100× compute speedups vs. more conventional approaches while retaining comparable accuracy in benchmarks.
- → Fully automated and partially parallelized active learning on computing clusters.

# COMPUTATIONAL MODEL OF MANIFOLD: 3RD PLACE PEO COMPETITION

PYTHON, OPENFOAM | MODEL TUNING, FLUID DYNAMICS

- → 3rd Place: Professional Engineers Ontario, Kingston, Engineering Competition
- → Development of a computational fluid dynamics model for Condair Inc., a global industrial humidifier manufacturer.

# LISTEN TO THE PATH: CUHACKING HACKATHON WINNER

C#, Unity | Graph Algorithms, Maze Generation

- → The team won Best Game and Best Hack (project) out of over 200 participants.
- → Developed a procedural and accessible maze game with support for the visually impaired. The game is playable solely off sound cues with voice-control support.

# PIN-JOINTED STRUCTURE SIMULATOR

PYTHON, TYPESCRIPT, REACT, SCIPY | GRAPH ALGORITHMS, ENERGY OPTIMIZATION, FEM

- → Interactive web-based FEM simulation of user-defined structures under load.
- → Stress and displacement calculated by gradient descent energy optimization.

Please see my personal website for more about projects, experience, and skills.

# **HONORS & AWARDS**

Best UNENE 2024 Student Thesis
Best student thesis (7-min presentation) at workshop.

# L. M. Arkley Prize

Best Mech. Eng. undergrad research paper, supported by an oral presentation.

Colin T. Bayne Memorial Award
Graduating Mech. Eng. student showing most proficiency in innovative design.

### Conn-Gilbert Award

Highest average in the core courses in thermodynamics.

CGS-M NSERC Scholarship R. Samuel McLaughlin Fellowship Lorne C Elder Scholarship Lena MacNeil Scholarship Dean's Scholar

# **EDUCATION**

# **QUEEN'S UNIVERSITY**

MASc Mechanical Engineering, Co-Supervised with Computer Engineering

CUMULATIVE GPA: 4.3 / 4.3 Sep 2023 - Exp. 9/25 | Kingston, Canada

BASc Mechanical Engineering

CUM. GPA: 4.18 / 4.3 , (90+ AVG.) Sep 2018 - April 2023 | Kingston, Canada

## SKILLS

# **PROGRAMMING**

Python • Git • C# • C++ • JavaScript • TypeScript • HTML • CSS • IATFX

## LIBRARIES/FRAMEWORKS

Git • SciPy • Pandas • NumPy • React • SLURM