Darryen Sands

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Education

2022 - 2025 **MSc Modelling and Computational Science**
Ontario Tech University (formerly UOIT), 2000 Simcoe St N, Oshawa, ON
Awarded, ***4.0/4.3***
Thesis: *Cluster Detection in General Markov Chains with Applications to Directed Networks*

2016 - 2022 **BSc (Honours) Physics & Applied and Industrial Mathematics**
Ontario Tech University (formerly UOIT), 2000 Simcoe St N, Oshawa, ON
Awarded, ***3.45/4.3***

Work Experience

- 2022 - 2025 **Teaching Assistant**
  Ontario Tech University
  - Worked as a teaching assistant for introductory linear algebra courses for engineering and science students, where classes comprised 30-40 students per tutorial.
  - Provided individualized support during office hours to help students understand complex topics, and students felt more confident in their abilities.
  - Graded assessments and provided feedback to over 200 students, contributing to enhanced comprehension.
- 2022 - 2025 **Graduate Research Assistant**
  Ontario Tech University
  - Created an algorithm to identify clusters within discrete Markov chains.
  - Developed the mathematical theory to justify and validate the algorithm and compared this algorithm to other algorithms in the field.
  - Wrote a thesis discussing the algorithm's strengths and weaknesses.
- 2022 - 2022 **Digital Literacy Facilitator**
  Durham Region Unemployed Help Centre
  - Developed and led workshop to educate clients on practical computer usage. Clients had more confidence and improved their digital literacy skills.
  - Designed a 4-day curriculum that covers essential computer skills. Some of these skills included: computer basics (using a keyboard and mouse), safe web browsing, Microsoft Office, and video conferencing.
  - Provided interactive lectures and engaged clients with hands-on practice and clear presentations.
- 2021 - 2022 **Lab Instructor**
  Ontario Tech University
  - Taught a lab of 20 students the basics of the Linux operating system and the terminal. The students gained knowledge of essential skills for the Linux operating system.
  - Preparation of lab environments and Raspberry Pis for computational physics experiments. This ensured that the students had time to focus on the experiments.

- Emphasized programming in Python to solve physics problems. The students improved their problem solving ability through the use of computation.

- 2019 - 2019 **Information Technology Assistant**
  Community Living Oshawa/Clarington
  - Listened to coworkers describe the issues with their computers, printers, or software; assessed issues and effectively resolved problems.
  - Independently assessed and solved problems during supervisor absences, maintaining IT operations.
  - Liaised with service companies, such as internet providers, to receive assistance in resolving technical issues.

Projects

- 2021 - 2021 **Solving Partial Differential Equations with Deep Learning**
  - Description: An upper-year course project involved using a deep learning library DeepXDE to solve partial differential equations. My team discussed the advantages and disadvantages over other solutions to PDEs.
  - Key Responsibilities:
    * Trained neural network models to approximate solutions to PDEs.
    * Analyzed performance of model and optimized the model for accuracy.
    * Provided a report discussing findings.
  - Technologies: Python, DeepXDE, TensorFlow, Mathematical Modelling.

- 2021 - 2021 **Fraudulent Credit Transaction Detection**
  - Description: An upper-year course project where we used a neural network to analyze a skewed dataset and detect fraudulent transactions.
  - Key Responsibilities:
    * Developed a model that avoided over-fitting due to a skewed dataset.
    * Validated model accuracy using standard metrics.
  - Technologies: Python, Pandas, TensorFlow.

- 2020 - 2020 **Real-Time Translation Glasses**
  - Description: My team proposed glasses that could translate language "on-the-fly" for a competition. We ranked as one of the top four teams.
  - Key Responsibilities:
    * Collaborated on product design, both from a hardware and software standpoint.
    * Presented to judges, highlighting the impact and market potential of the product.
  - Technologies: Image Recognition, Python, Product Design.

Skills

- **Technical Skills**: Python, C++, Matlab, FORTRAN, Java, Git, Microsoft Office, Linux.
- **Analytical Skills**: Problem-solving, Mathematical modelling, Critical thinking.
- **Soft Skills**: Presentations, Effective communication, Focused under pressure, Time management.