Isabella Rossi

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Education

University of Waterloo — Waterloo, ON
Biomedical Engineering, Bachelor of Applied Science (BASc) — *Sept 2022 - Apr 2027*

- Relevant courses: Data Structures & Algorithms, Digital Computation, Linear Systems & Signals, Linear Algebra, Introduction to Biomedical Design, Human Factors in the Design of Biomedical and Health Systems

Skills

Languages: Python, Java, C/C++, Javascript, SQL, Golang, HTML/CSS, Kotlin, Ruby, Scala
Libraries: TensorFlow, PyTorch, Keras, Redux, NumPy, OpenCV, pandas
Frameworks/Tools: React, AngularJS, NodeJS, Spark, MongoDB, MySQL, Hadoop, .NET, SproutCore, Kubernetes

Experience

Software Engineer and AI Research Intern — May 2025 – Present
Microsoft — *Toronto, ON*

- Developed a **3D segmentation model** for brain tumor boundaries using **volumetric MRI scans** for **Project InnerEye,** reducing radiotherapy planning time by **60%** in clinical workflows
- Designed a **cloud-based ML pipeline** on **Azure ML** for processing and training on large-scale **biomedical imaging datasets**, reducing preprocessing time by **40%** and accelerating model iteration cycles
- Developed a time-series classification model using **Python, TensorFlow** and **scikit-learn** to predict hypertensive events from **PPG signals,** improving detection rates by **50%** and real-time alerts via **Azure IoT Hub**

Software Engineer Intern — Sept 2024 – Dec 2024
Zynga Inc. — *Toronto, ON*

- Developed a scalable **machine learning analysis pipeline** using **Python** and **TensorFlow** to process **4 million data points** for real-time anomaly detection, enhancing system accuracy by **60%**
- Built an **AI assistant recommendation engine** leveraging **Generative AI** for personalized content delivery, achieving **95%** accuracy and providing tailored insights to over **3 million users**
- Developed an event-driven **microservice** architecture with **Java** and **AWS Lambda** for real-time event processing in high-traffic applications, improving scalability by **75%**

Research Student — Aug 2024 – Present
University Health Network (UHN) — *Toronto, ON*

- Conducted a **pilot study** to evaluate the accuracy and reliability of **cardiovascular metrics** collected by consumer-grade wearables in **heart failure and ventricular assist device (VAD) patients**
- Integrated a **machine learning algorithm** that leverages **real-time data** to estimate **cardiac output** based on physiological parameters for **VAD patient monitoring**
- Analyzed and validated data from **wearable devices** against **clinical-grade equipment**, including ECGs and pulse oximeters, to assess the **feasibility** of remote cardiovascular monitoring

Projects

Spinal Cord Injury Detection | *Python, Computer Vision, TransUNet, TensorFlow, PyTorch*

- Developed a **machine learning tool** using **computer vision** and **TransUNet** for automated **injury localization** and soft tissue **segmentation** in spinal ultrasound images, enhancing clinical assessments

Alzheimer's Disease Diagnostic Optimization | *Bidirectional LSTM, Python, NumPy, pandas, PyTorch*

- Built machine learning models, including a **cost-effective predictor selection algorithm** and a **bidirectional LSTM** to improve **diagnostic accuracy and early detection** of Alzheimer's Disease progression

Human Activity Recognition Movement Classifier | *Python, MATLAB, TensorFlow, NumPy*

- Built an **LSTM-based model** achieving **94% accuracy** in **classifying six physical activities** using smartphone **sensor data,** demonstrating strong temporal pattern recognition