

Nikolas "Dax" Manuel

CANADIAN CITIZEN

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EDUCATION

University of New Brunswick

Fredericton, NB

Bachelor of Science in Software Engineering, Minor in Mathematics | Dean's List 2024-2025

Sep 2024 – Apr 2028

- **Relevant Coursework:** Data Structures & Algorithms, Software Engineering, Databases, Systems Programming.

TECHNICAL SKILLS

Languages: Python, Java, C/C++, JavaScript, SQL, HTML/CSS

Frameworks/Libraries: Spring Boot, PyTorch, NumPy, Pandas, FastAPI, Next.js

Developer/Engineering Tools: Git, AWS, Google Cloud Platform, Postman, Docker, Linux, Jira

EXPERIENCE

Intelligent Mobility and Robotics Lab

Jan 2026 – Present

Automotive Research Intern

Fredericton, NB

- Developing machine learning models for safe speed estimation in diverse road and weather conditions for semi-autonomous trucks, improving driving safety.
- Labeled computer vision driving datasets in preparation for supervised model training.

UNB Formula Racing Electric

Sep 2025 – Present

Electrical Powertrain Member

Fredericton, NB

- Researched the integration of the Accelerator Pedal Position Sensor (APPS), integrated a model with the accelerator pedal on SOLIDWORKS, and ensured part alignment with FSAE rules.
- Applied engineering and design principles to develop the low-voltage subsystem for an EV race car for Formula SAE (FSAE) competition while focusing on safety requirements, performance, and simplicity.
- Created clean technical documentation for the APPS system integration for maintainability and knowledge transfer.

PROJECTS

Vehicle Perception Model | [GitHub](#) | *Python, PyTorch, NumPy, Pandas, AWS*

Nov 2025 - Jan 2026

- Converted research into a 3D vehicle perception pipeline from LiDAR data preprocessing to 3D bounding box predictions, with predictions vs ground-truth label comparison using Open3d visualization.
- Reduced training time by **75%** by leveraging **AWS EC2** instances to perform scalable training.
- Trained the convolutional neural network model using **PyTorch** with the Waymo Open Dataset on GCP.
- Preprocessed **150,000+** LiDAR frames converting parquet formatted data into NumPy arrays for training.

HR System | CS2043 Term Project | *Spring Boot, JavaScript, HTML/CSS, PostgreSQL*

Sep 2025 – Nov 2025

- Led a group of four as scrum master, facilitated agile principles for sprint events to build a full stack application integrating **RESTful API** architecture with **Spring Boot/Java, JavaScript, and PostgreSQL**.
- Applied the full software development life cycle from planning/requirements through implementation, testing and deployment, while ensuring high code quality, maintainability, and alignment with requirements.
- Implemented JUnit testing for software validation and performed debugging to reduce errors by **99%**.

CAD Automation Platform | [McHacks '26](#) | *FastAPI, Next.js, Gemini API*

Jan 2025

- Developed a CAD automation application converting natural-language prompts into fully exportable 3D models in **under four seconds** with Gemini API, through **REST API** endpoints with **FastAPI**.

LEADERSHIP AND ACTIVITIES

Soccer Coach

Apr 2024 – Present

Fredericton District Soccer Association

Fredericton, NB

UNB Men's Varsity Soccer Player

Aug 2024 - Present