Ali Chaudhry

Toronto, ON | www.linkedin.com/in/nachaudhry | 780-243-1020 | n.ali12c@gmail.com

KEY COMPETENCIES

C++, C#, Python, Git, DevOps, PyTorch, Scikit Learn, Pandas, Numpy, Matplotlib, Django, LLMs, Cursor

Docker, Kubernetes, Statistical Analysis, Streamlit, CI/CD Pipelines, Scrum, Agile Development, React.js, Microsoft Foundation Class (MFC)

TensorFlow, Keras, Unit Testing, Plotly, OpenMP, OpenCV, HTML/CSS/Javascript, MongoDB, Object-Oriented Programming

WORK EXPERIENCE

Rocscience **Toronto, ON**
Software Developer *09/2022 - Present*

- **Lead** developer for RSPile and Settle3, utilizing **MFC** to design and implement **user-friendly** front-end interfaces
- Reduced technical debt by refactoring legacy **C++** code to conform to **MVVM** architecture, enabling more scalable, maintainable, and bug-free code for future developers
- Produced high-quality, on-time projects by thoroughly planning software sprints, executing development, and deploying end-to-end release pipelines on **Azure DevOps**
- Collaborated in **Scrum** teams to deliver high-priority features through iterative **Agile** development, ensuring rapid delivery and continuous improvement
- Applied multi-threaded processing with **OpenMP** to accelerate computational tasks, reducing analysis runtime by up to **40%** for large-scale simulations

Associated Engineering **Edmonton, AB**
Software Developer *01/2022 - 04/2022*

- Optimized engineers' time on project-specific structural calculations by creating generalized programs with **Tekla Tedd's API**, saving the company **weeks** on deliverables
- Reduced dependency on costly third-party engineering software by providing a validated in-house solution, allowing the company to **streamline** calculations and **lower expenses**

UWaterloo – Centre for Pavement and Transportation Technology **Waterloo, ON**
Software Developer *04/2021 - 12/2021*

- Enhanced the lab's research portfolio through a high-impact, **National Research Council**-funded publication that studied predictive pavement modeling for infrastructure planning
- Assisted in the development and implementation of machine learning algorithms trained from 25+ years of pavement data with methods including **linear regression**, **random forests**, **support vector machine**, and **Artificial Neural Networks (ANNs)** to predict long-term pavement performance
- Performed **hyperparameter tuning** and **feature engineering** within the **Scikit-learn** library to achieve a model accuracy of $\mathbf{R^2}$ = **0.95**

RELEVANT PROJECTS

Structural Analysis Web Application

- Designed, developed, and launched a standalone web application using Streamlit, leveraging **OOP** principles to perform **structural analysis calculations** and interactive visualizations on 2D frames

Engineering Design Chatbot

- Created an **AI-powered** chatbot trained on engineering codes to assist engineers with retrieving and understanding design parameters, actively being tested and refined by colleagues in the field to enhance accuracy

Facial Expression Recognition Model

- Built a **TensorFlow Convoluted Neural Network (CNN)** to predict facial expressions, importing and preprocessing a labeled dataset with resizing and **feature extraction** to enhance model performance

EDUCATION

University of Waterloo **Waterloo, ON**
Bachelors of Applied Science, Computing Minor *GPA: 3.7/4.0*