MOHAMMED FARHAN BALUCH

Windsor, ON
+1(226)961-0559 | farhanbaluch.com | baluchm@uwindsor.ca | linkedin.com/in/farhan1301

**I also hold valid reliability security clearance status from Government of Canada*

PROFILE OF SKILLS

- **4+ Years of Python Programming** experience demonstrated through courses by scoring **90%+**, being a programming intern, and leading several projects involving heavy Python usage
- **3+ Years of Machine Learning** experience exhibited through several research projects, **5** publications, and mentoring **50+** students at Deeplearning.AI
- **Software Development Skills** exhibited through experience working as a Programming Intern and working with JavaScript, C#, .NET and attending weekly agile meetings using Jira
- **Web-Development Skills** denoted by working as a Web Development Intern and passing the Microsoft certification 'MTA – HTML & CSS'
- **Problem-Solving, Leadership, and Communication Skills** portrayed through leading a chatbot project for a university website, collaborating with several professors and colleagues for research studies, and holding lab sessions for undergraduate students

TECHNICAL SKILLS

Programming Languages

- Python, SQL, C, C++, Java, HTML, CSS, JavaScript, C#

Frameworks

- .NET, React, jQuery, Spring Boot, Postman, Scikit-learn, TensorFlow, Keras, Matplotlib, PyTorch, NLTK, OpenCV, Pandas, NumPy, Seaborn, Shell Scripting, LaTeX, d3.js, Agile

Tools & Technologies

- Git, Gitlab CI/CD, Docker, MySQL, Azure DevOps, Apache Hadoop, Apache Spark, Git, Jira, PowerBI, UI Path, UNIX, AWS, Jupyter, VS Code, Microsoft Office Suite: Word, Excel, Powerpoint, Sharepoint, Tableau, Kubernetes, RESTful API, PostgreSQL, spaCy, OpenAI API

EDUCATION

Master of Science Computer Science Artificial Intelligence Stream Co-op Sep 2022 - Present
University of Windsor, Windsor, ON

- Cumulative GPA: **92.2** / 100

Bachelor of Technology in Computer Science Jul 2018 - Jul 2022
Vit Bhopal University, Bhopal, IN

- Cumulative GPA: **8.95** / 10.0

EXPERIENCE

AI Developer, Agriculture & Agri-Foods Canada, Harrow, ON May 2023 - Aug 2023

- Developed a web application to address challenge of accurately identifying plant diseases, focusing on powdery mildew with **98.3%** accuracy
- Collaborated in development of an Agri-Foods chatbot based on GPT-4 architecture leveraging OpenAI API
- Created an internal tool called as PDF Parser to help HR department in extracting important information from Resume and Cover-letters using spaCy

Graduate Teaching Assistant, University of Windsor, Windsor, ON Sep 2022 - Apr 2023

- Conducted lab sessions and solved students' queries for **50+** students every week for Computer Architecture (COMP-2660) and Systems Programming (COMP-2560) courses

- Grading **50+** students' exam papers and assignments and held 1-on-1 sessions for students in need of extra help

Programming Intern, Coderspacket, Vadodara, India Apr 2021 - Jun 2021

- Developed **3** reusable open-source code packets using JAVA & Python. Packets included facial recognition system, registration system for colleges & chatbot interface
- Created packets were deployed using Docker and downloaded **100+** times by fellow developers for use in bigger open source projects & scaling applications & process improvement
- Performed functional testing and debugging for developed packets
- Worked in the transition of a monolithic app into a microservice architecture using .NET & C# as part of a team

Web Development Intern, Verzeo, Vadodara, India Dec 2019 - Jan 2020

- Responsible for developing and designing login, registration, and other fragmented components using HTML, CSS, JavaScript, Material-UI and React framework.
- Worked closely with team members and actively participated in weekly Agile meetings with Jira
- Led a team of **4** members to execute the back-end functioning of the site using NodeJS, SQL & Git.
- Worked on producing dynamic data graphs for company's website using JavaScript library - D3.js

Paper Reviewer & Program Committee Member, IEEE - AIC, Remote May 2022 - Jun 2022

- Reviewed & critiqued **10** research papers for the IEEE world conference - Applied Intelligence & Computing and gave detailed feedbacks on scope of improvements
- Ensured smooth conduct of conference by holding meetings with other committee members and helping technical team by creating data reports & providing creative solutions for quality improvement

Course Mentor, DEEPLEARNING.AI, Remote Aug 2021 - Dec 2021

- Mentored **50+** students for 'AI for Medicine' course on Coursera & solved programming-related queries & content queries using insightful solutions
- Suggested **4** major improvements in course contents & shared data analytics, and prepared reports for the DLAI team to improve quality, customer satisfaction & service delivery
- Updated technical documentations to enhance course delivery process

PROJECTS

SAM - College Chatbot

- Led a team of **4** on a retrieval-based Natural Language Processing (NLP) chatbot to automate common college-related queries responses, used by **700+** students after integration with college website
- Constructed using Scikit-learn & NLTK packages in Python and optimized response generation using TF-IDF approach & cosine math similarity to achieve **92%** accuracy
- Automated the testing and deployment of the application using Gitlab CI/CD pipeline

Ethereum Fraud Detection

- Applied various data visualization and analysis methods on Ethereum blockchain datasets to build a solution for preventing frauds
- Devised a modified Light Gradient Boosting Machine (LGBM) algorithm for accurately detecting fraudulent transactions and performed a comparative analysis with **12** best machine-learning algorithms
- Tuned model with hyper-parameters' optimization to achieve an accuracy of **99.03%**
- Performed a comparative analysis with **12** best machine-learning algorithms by deploying ML models on GCP Vertex AI

Internet Usage v/s Suicide Rate Analysis

- Proved hypothesis internet usage is directly related to number of suicides per **100** leveraging data analysis & interpretation tools in Python
- Applied 'gapminder' code book dataset and performed data extraction using Pandas for various countries and created a dashboard using PowerBI business intelligence tool

Sentiment-driven Stock Prediction

- Developed a cutting-edge stock prediction model by incorporating semantic analysis and sentiment features extracted from textual data sources, such as news articles and social media posts
- Integrated financial news data and stock market data using the AlphaVantage API and Implemented an LSTM (Long Short-Term Memory) attention model using PyTorch for stock price prediction
- Achieved outstanding performance metrics on historical IBM stock data, including a Mean Squared Error (MSE) of **0.046**

Fish Image Classification

- Identified fish ecosystem species by utilizing segmentation of fish images obtained from dataset with over 9000 images and 20 features
- Compared feature extraction performance with Inception, ResNet, EfficientNet etc. models to validate credibility of proposed model
- Observed data-driven approach confirmed deep learning model to be leading model with an accuracy of **99.68%**

PUBLICATIONS

Desai, N. P., **Baluch, M. F.** & Aziz, R. M. (2023). Computer vision model with novel cuckoo search based deep learning approach for classification of fish image. Multimedia Tools and Applications, 1-20.

Baluch, M. F., Patel, S., Aziz, R. M. & Ganie, A. H. (2022). LGBM: a machine learning approach for Ethereum fraud detection. International Journal of Information Technology, 1-11.

Baluch, M. F., Patel, S., Aziz, R. M. & Kumar, P. (2022). A machine learning based approach to detect the Ethereum fraud transactions with limited attributes. Karbala Int. J. Mod. Sci, 8, 139-151.

Desai, N. P., Wadhwani, A., **Baluch, M. F.,** & Mishra, N. (2021, September). A Comparative Assessment Study on Machine Learning Classifiers for Cardiac Arrest Diagnosis and Prediction. In 2021 International Conference on Innovative Computing, Intelligent Communication and Smart Electrical Systems (ICSES) (pp. 1-6). IEEE.

AWARDS

Departmental, University of Windsor - $4,000 Jan 2023

- Awarded for scoring **90%+** in all graduate level courses in Fall 2022 term

Provincial, Ontario Graduate Scholarship - $15,000 Sep 2022

- Awarded **1** out of 4 available awards for international students at University of Windsor with **2500+** students

95th /40,000, National Engineering Olympiad 4.0 Jun 2021

1st /300, VIT Bhopal Mathematics Quiz competition Mar 2019

Institutional, VIT Bhopal GVSDP Scholarship - $1,000 Jul 2018

CERTIFICATIONS

Machine Learning: Algorithms in the Real-World, Coursera (Specialization) Aug 2021

Data Management & Visualization, Coursera (Wesleyan University) Jul 2021