Hrithik Kumar Advani

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EDUCATION

University of Toronto **Toronto, ON**
Honours Bachelor of Science in Computer Science and Statistics **September 2018 - May 2022**

- **Honour Roll (2019, 2020)**: Recognized for excellence in Computer Science, Statistics, and Mathematics courses
- **Relevant Coursework:**
    - Machine Learning
    - Neural Nets and Deep Learning
    - Data Structures and Algorithms
    - Intro to Software Engineering
    - Databases
    - Probability and Data Analysis

EXPERIENCE

Full Stack Java Teaching Assistant **September 2022–August 2023**
Black Professionals In Tech Network (Bptn) Inc

- Guided 160+ students through two capstone projects, FeedApp and WeatherApp, fostering proficiency in Java (J2EE), Spring Framework, Spring Boot, RESTful APIs, Data Structures, Maven, Hibernate, SQL, XML, JSON, and Git workflow
- Collaborated on curriculum development and provided personalized student mentorship during office hours
- Maintained an engaging classroom environment, encouraging active participation; Recognized for fast debugging skills and ability to harness passion to deliver effective instruction

Machine Learning Engineer (Intern) **May 2022–August 2022**
Gunning Group (Cancer Research Lab), University of Toronto

- Extended a 3D Convolutional Neural network model by 20%, enhancing drug discovery solutions for cancer treatment
- Developed a Flask web interface for chemists, increasing model usability by 30% and facilitating data integration
- Optimized batch prediction time by 10%, leveraging high-performance GPU computing

Teaching Assistant **September 2020–August 2022**
University of Toronto

- Designed engaging exercises for 30+ students in collaboration with course instructors
- Provided technical mentorship for multiple data analytics and full-stack projects over a 4-month development cycle
- Achieved best contribution amongst TAs in resolving Students' queries on course forums with 300+ students
- Software Engineering(Head TA), Software Design, Databases, Systems Programming, Theory of Computation, Experimental Design, Surveys/Sampling and Observational Data, Probability and Data Analysis, and 10+ courses

PROJECTS

DeepPocket - **Github**

- Led a team to develop a deep learning solution for protein-ligand binding site detection, replacing manual Excel-based processes at a Cancer Research Lab
- Engineered a web scraper to collect and preprocess 1 TB of data efficiently, saving 20% of manual data downloading time
- Leveraged PyTorch to train, and fine-tune a Transformer model for ligand binding site detection, meeting tight project deadlines

Road Traffic Accident Severity Prediction - **Github**

- Trained Logistic Regression, ExtraTreeClassifier, and XgBoost model in Python on 10000+ road accident instances from Kaggle dataset, deploying best model using Streamlit on Heroku
- Improved ExtraTreeClassifier model performance by 6%, tuning hyperparameters using GridSearchCV, and examining F1-score
- Integrated Model Interpretability with SHAP for insightful analysis and practical insights

Education Influential Factors of University Students Attendance - **Publication**

- Led influential research with a diverse team, exploring online student attendance during COVID-19; Implemented the analysis code in R, utilizing a Ridge logistic regression model on survey data of more than 1100 university students
- Proposed a set of impactful solutions, informed by relevant literature, to resolve absenteeism in class; Showcased exceptional collaboration and problem-solving abilities, driving tangible improvements in the virtual learning landscape