Ronnit Roy Burman

rrburman@uwaterloo.ca | 437-988-2357 | ronnitburman | ronnitburman

Objective:
An innovative machine learning engineer with hands-on work experience as a Data Science Intern - seeking full-time opportunities to apply Machine Learning methods and develop algorithms to solve real-world industrial problems.

Technical Skills

- **Tools & Languages -** Python, PostgreSQL, BigQuerry, R, AWS, Matlab
- **Packages -** NumPy, Pandas, Scikit-Learn, Git, Jupyter, PyTorch, Keras, Tensorflow
- **Data Visualization -** Power BI, Matplotlib, Seaborn
- **Machine Learning -** CNN, SVM, Random Forest, PCA, LDA, KNN, Deep Learning
- **Statistical Modelling -** IBM SPSS, Clustering, ANOVA, Logistic Regression, A/B Testing

Work Experience

Present – Jun 2022

***Data Science Intern* - Safety Products, Johnson Controls**

- Developed a project to correlate alternative GeoSpatial data (such as Property Crime Index, Demographics, etc.) with traditional data points in order to generate ZIP code correlation heat maps that identify growth opportunities at the grass-roots GeoSpatial level to increase sales opportunities by 7%. The location-based alternative data was imported using web scraping and the traditional data was imported via PostgreSQL from Google BigQuery. Data was visualized and reports were generated using Power BI. By initiating another project to optimize mobile views for Power BI, the number of unique views per day increased by 113%.
- Prototyped a model to create floor-plans of your living space using a smartphone camera. PointNet was used to consume a 3D point cloud along with a parallel CNN branch to map the 2D point density of the data from the top view. Around 90% of living spaces in North America don't have floor plans. If floor plans are automatically reconstructed by walking through the apartment, it can have a huge effect on businesses related to housing.
- Performed EDA on more than 50GB data using PostgreSQL, Pandas and Google BigQuerry

Sep 2021 – Jul 2016

***Sr. Systems Engineer* - Building Solutions, Johnson Controls**

- Engineered and designed control systems to optimize energy efficiency and HVAC performance after analyzing data from building sensors. Strategized control sequences and architected network design for the entire building automation control systems leading to 10%-30% reduction in energy consumption of Commercial Buildings
- As a result of client communication (measured by appreciation emails from clients and 100 percent response to client emails within 24 hours), we recorded 100% client retention and a 137% increase in client re-orders.
- Received "Merit Award" (one of the most prestigious awards globally) for going out of the way in developing innovative proof of concepts leading to a pending patent.
- Designated as the Innovation Lead in 2019 for Eastern Part of North America to drive innovation ideation process among the front line workers such as field technicians

Major Key Projects:

- **Empire State Building:** Implemented control strategies and optimizations for several floors of the Empire State Building. More than 40 million dollars were saved through the Controls efficiency projects.
- **Lincoln Medical Center, Bronx, New York:** Lincoln Medical Center is one of America's busiest trauma hospitals. During the peak COVID mitigation phase in New York - successfully designed, implemented and managed the retrofit of several rooms into COVID isolation rooms and automated space pressurization and temperature control under grueling deadlines and critical conditions.

Education

Dec 2022 – Sep 2021

***Master of Engineering* - Artificial Intelligence and Machine Learning** GPA: 3.93
Systems Design Engineering Department
University of Waterloo, Waterloo, Ontario

May 2016 – Jul 2012

***Bachelor of Technology* - Electronics and Instrumentation** GPA: 3.62
School of Electrical Engineering
VIT University, Vellore, TN - India

Technical Projects

Sep 2022 – Jan 2022 | ***American Sign Language Recogition*** **- Github Link**

- The American Sign Language dataset was treated with a combination of Machine Learning (Logistic Regression, SVM and Random Forest classifiers) and Deep Learning classifiers. The complexity and compressibility of the data were evaluated using several dimension reduction techniques.
- In comparison to current technology, our ASL fingerspelling education app increased effective learning metrics 2-3 times. By incorporating the ASL fingerspelling detection feature in the backend we were able to provide feedback on the correctness of fingerspelling signed by the user.

Jul 2018 – Jan 2017 | ***Building Traffic Characterization using Building Data*** **- Personal Project**

- Hypothesized a model to predict customer influx in a retail store using BAS data. Chiller Plant Optimization (CPO-10, CPO-30) on the output of this predictor leads to a potential 10% reduction of overall operating cost of the store in terms of energy savings from the HVAC equipment.

Additional Roles and Achievments

- **Teaching Assistant - SYDE600 - Prof. John Zelek:** Facilitated students with the SPRINT protocol for Engineering System Design methods applying the principles of engineering problem solving, research methods, systems analysis including modeling, simulation, optimization and design.
- **President - department Graduate Student Association, uWaterloo:** Provided leadership in spearheading a work plan to develop, execute and monitor various graduate students events to promote mental health during the difficult times of COVID. Pioneered re-Introduction of in-person symposiums after COVID shutdown for graduate students to network and share their works
- **Winner of International Medical Hackathon:** Organized by CAMtech (Massachusetts General Hospital) in Mbarara, Uganda. During our team's visit to the hospitals in Uganda, as part of a hackathon to develop affordable medical technologies for developing countries, we observed that lack of operational suction devices caused many fatalities every day in the entire country. To battle this unfortunate situation, we built a gravity-operated, non-electric suction device to replace traditional suction pumps in the hospitals where electricity is not reliable. On full deployment, this working prototype could potentially prevent around 20-25 fatalities daily.
- **Founder and Leader of a Hybrid Vehicle Racing Team :** As a whole, the hybrid vehicle was a product of several key innovative sub-projects that led the team to win the Best Innovation award for the two consecutive years. Some of the most innovative sub-projects:
  - Automatic Transmission
  - Wireless Charging
  - Wireless Data Acquisition

Certifications

- **Neural Networks and Deep Learning** (Click to verify)
- **SQL Basics in PostgreSQL** (Click to verify)
- **Industrial Automation - Rockwell Automation**

Courses Undertaken

- **Advanced Image Processing** - SYDE671 - University of Waterloo
- **Pattern Recognition** - SYDE675 - University of Waterloo
- **Systems Design Graduate Workshop - AI & ML** - SYDE660A - University of Waterloo
- **Foundations of Artificial Intelligence** - SYDE522 - University of Waterloo
- **Systems Theory, Models, Research & Design** - SYDE600 - University of Waterloo
- **Statistical Methods for Data Analytics** - MSCI718 - University of Waterloo
- **Data Analysis and Management** - BE602 - University of Waterloo
- **Project Management** - BE605 - University of Waterloo