Saba Siddiqi, M.Eng.

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Areas of Emphasis – Machine Learning (NLP, Computer Vision, Predictive Analysis, Deep Learning) , Data Analytics, Project Planning & Coordination, Embedded Systems

Education

2016–2018 **Master of Engineering**, *University of Waterloo*, Waterloo, *GPA - 3.75/4*

2010–2013 **Bachelor of Engineering**, *NED University of Engineering and Technology*, Pakistan, *GPA - 3.7/4*

2008–2009 **Higher Education, Pre-Engineering**, *BAMM PECHS Government College For Women*, Pakistan, *GPA - 3.7/4*

Masters Highlights

Emphasis *Data Modelling and Analysis, Machine Learning, Natural Language Processing, Computer Vision*

Related Courses *ECE657 - Tools of Intelligent Systems*
ECE657A - Data & Knowledge Modelling and Analysis
ECE621 – Computer Organization
ECE650 – Foundations of Software Engineering
ECE621 – Foundations of Biology in Engineering

Tools and Technologies

- Python, C, C++, VHDL, Assembly, Java, Django
- ML Libraries – Pandas, Scipy, Keras, TensorFlow, Pytorch, Numpy, Matplotlib, Nltk
- ML Tasks and Applications – Regression, Supervised & Unsupervised Learning, Classification (Binary, Multi label & Multi class), Computer Vision, NLP, Prediction, Data Preparation, Cleaning and Visualization
- LaTeX, Microsoft Project, Microsoft Office Suite
- Adobe Illustrator, Html, Cascading Style Sheets (CSS), Bootstrap
- LabView, MATLAB, Proteus, Multisim, SPICE, SIMATIC
- Eclipse, PyCharm, Git, Unix

Featured Projects

Toxic Comment Classification

- ***What*** - Natural Language Processing (NLP) Problem: Trained classifiers to predict level of toxicity with reasonable accuracy for a user comment, for an imbalanced data.
- ***Why*** - To make online discussions more productive and to prevent online harassment; and allowing moderators to be more selective of what to filter out using the toxicity subcategory.
- ***How*** -
  - Converted textual data to numeric form using word2vec and TFIDF for processing.
  - Used binary relevance and chained classifier methods to deal with Multi-label problem.
  - Used SMOTE to deal with imbalanced data.
  - Compared performance of SVM, Multinomial Naïve Bayes (MNB) and CNN to find the best method for the given problem.
- ***Language Used*** – Python

Vehicle Detection using Machine Learning

- ***What*** - Vehicle detection in different environments
- ***Why*** - So that autonomous vehicles can move smoothly by detecting vehicles using on-board camera in different environments (e.g. traffic sign/light, lane, pedestrian, and other vehicles)
- ***How*** - Vehicle detection done using image processing and soft computing AI methods Neural Networks and SVM. Pre-existing data set used to train classifiers for upcoming scenarios.
- ***Language/Platform used*** - MATLAB

Autonomous Roving System with Ultrasonic Guidance

- a prototype to avoid obstacles while keeping track of its location using ultrasonic sensors, camera and GPS
- embedded chip programmed using C
- image processing tasks using MATLAB

Engineering Experience

Feb'16–Jul'16 **Design Engineer**, *R&D Altanova*, Pakistan.

Key Responsibilities:

- Designed and verified PCB Boards using Allegro, Cadence
- Maintained project design documentations and BOMs support

Sep'14_Jan'16 **Planning Lead**, *Reon Energy Limited*, Pakistan.

Key Responsibilities:

- Ensured timely completion of projects by effective Project Planning using Microsoft Dynamics AX and Microsoft Project
- Controlled project quality by monitoring project activities, deliverables and implementing risk management

Jan'14–Jun'14 **Electrical Engineer**, *Vital Progressions R&D*, Pakistan.

Key Responsibilities:

- Designed and built prototype & final product of embedded systems, given an initial concept; using Circuit Designing, Power Analysis and Micro-controller Programming expertise

Additional Experience

Aug'17–Jun'18 **AccessAbility Services Proctor**, *AccessAbility (University of Waterloo)*, Waterloo.

Key Responsibilities:

- Proctor students with special needs during exams
- Help students with using technical support and provide scribing support
- Ensure that university policies and academic integrity procedures are being followed
- Facilitate students and teacher co-ordination regarding any queries by means of phone calls and emails

Sep'17 – Dec'17 **Graduate Teaching Assistant,** *University of Waterloo*

Course – ECE621 Computer Organization

Course Level – Graduate

Key Responsibilities:

- Graded Assignments, Quizzes and Exams and providing feedback on how to improve
- Assisted students with queries regarding course material and assignments

Volunteer Experience

April 2010 **Volunteer**, *Student Project Exhibition and Competition (SPEC), NED University, Pakistan*

March 2011 **Creative Organizer,** *The Society for Promotion of Science, Engineering & Technology (SENTEC), NED University, Pakistan*