Mustafa Muhammad

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Education

Bachelor of Software Engineering (3rd year), 09/2018 – present
University of Calgary

- **Relevant courses:** Data Structures and Algorithms, OOP, Computer Networks, Linear Algebra, Discrete Mathematics

Skills

Languages: *(C/C++, Java, Python, JavaScript, R, HTML, CSS)*

Technologies: *(React, MongoDB, Node.js, Express.js, NumPy, Heroku, Firebase, NLTK, Git, Caret, TensorFlow)*

Professional Experience

Researcher, *RWTH Aachen Unversity* 05/2020 – 08/2020 | Aachen, Germany

- Researched applications of **support vector machines** and **naïve Bayes classifiers** for the purpose of automatically detecting fake news.
- Built classifiers using the **caret package in R**, achieving a fake news **detection accuracy of 67.48%**.
- Utilized **scikit learn** to distinguish most useful features, increasing accuracy and decreasing training time for models.
- Leveraged **Python Seaborn** and **R ggplot2** to visualize and present data.

Co Owner, *Ape Apparel* 10/2017 – 04/2018 | Calgary, Canada

- Created apparel company that achieved a **230% ROI** after 18 weeks.
- Utilized **strong interpersonal and communication skills** to resolve conflicts between team members by conducting bi-weekly interviews with each member of the team.

Projects

LectureAid, *Desktop Application*

- Developed application using **Vosk Speech Recognition Toolkit** to **transcribe and summarize** online lecture videos.
- Used **Pydub** to adjust **frame rate** and **bit width** of audio **to improve speech recognition accuracy.**
- Utilized **NLTK** to implement a **TF-IDF algorithm** to extract key sentences from the transcript, effectively reducing text transcription to **40% of its original size.**

Fortuna, *Web Application*

- Used **React, Node.js, Express.js and MongoDB** to create a web application that records and analyzes spending habits, deployed using **Firebase** and **Heroku.**

Neural Net, *Machine Learning Library*

- Leveraged **NumPy** to develop neural network library from scratch that supports **networks of arbitrary dimensions.**
- Utilized techniques from linear algebra and multivariable calculus to implement the backpropagation algorithm with **stochastic gradient descent.**

Sorting Algorithm Visualizer, *Desktop Application*

- Leveraged **Pygame** to visualize 5 popular sorting algorithms, with an interactive menu that allows the user to set various parameters for each algorithm.

Extracurriculars

Executive, *U of C League of Legends Club* 09/2019 – present | Calgary, Canada

- Organized bi-weekly meetings to plan and execute online and in person events.
- Provided live commentary and analysis for multiple **6-hour online tournaments** with over **60 participants**.
- Coordinated sponsorship opportunities with companies such as **Red bull.**