# Nayeem Mohammad

+1 (803) 404 8432 | nayeem@email.sc.edu | GitHub | Website | LinkedIn
215 Spencer Pl, Cayce, Columbia, SC 29033

## RESEARCH INTEREST

- **Computer Vision, Neuroimaging, Natural Language Processing, and Deep Learning**

## EDUCATION

**University of South Carolina** August 2022 – Present
*Doctoral of Philosophy in Computer Science*

**Coursework:** Data Mining, Reinforcement Learning, Analysis of Algorithms, Compiler Construction, and Neurosymbolic AI

**North South University** January 2016 – May 2020
*Bachelor of Science in Computer Science and Engineering* **CGPA:3.58/4.0**

- **Cum Laude** in Computer Science and Engineering
- **Coursework:** Pattern Recognition, Machine Learning, Data Communication and Network, Design and Analysis of Algorithms, Database Management System, Computer Organization and Architecture, Data Structures and Algorithms

**Notre Dame College** July 2012 – May 2014
**GPA:5.0/5.0**

## PROFESSIONAL EXPERIENCE

**Graduate Research Assistant** August 2023 – Present

- Artificial Intelligence Institute of South Carolina (AIISC)
  Supervised by **Dr. Amit Sheth**; Founding Director of AI Institute of UofSC

**Cabinet Secretary of Professional Development** August 2023 – Present

- Graduate Student Association

**Graduate Teaching Assistant** August 2022 – Present

## PROGRAMMING EXPERIENCE

**CODEFORCES**
*Handle : **Initiated***

- Solved **275 problems**; participated in **46 online contests** in codeforces

**LightOJ**
*Handle : **initiated***

- Solved **64 problems** from one of the most tough online judges

## PROJECTS

### Sign-Language-App

- Developed a WebApp using Computer Vision to detect hand signs that takes real-time video inputs
- Used Deep Learning Models (VGG16 and MobileNet) to recognize the letters associated with the signs
- Optimized MobileNet using loss functions, optimizers, and activation functions
- Designed the WebApp using Flask; Integrated the Deep Learning model and Google API (text-to-speech)
- **Used Technology: Python, OpenCV, Deep Learning, Google API, Colab, Flask, HTML, CSS GitHub**

### Simple Neural Network

- Developed a C++ implementation of a simple Neural Network that takes functions, input values (x), weights, and biases as inputs
- Uses the Shunting-yard algorithm to parse the input function, dynamic programming solution for the differential equation and calculates the prediction value (y)
- Identical version of the C++ implementation in GOLang
- **Used Technology: C++, GO GitHub**;

### BlogApp

- Built a blog using Django and HTML/CSS
- Connected SQLite Database with the blog
- Built CRUD operations and federated login system
- **Used Technology: Python, HTML, CSS GitHub**

### Siamese Network

- Implemented Siamese network to perform a person re-identification using One-Shot Learning
- Added a layer of Normalized Cross-correlation to improve the performance
- Optimized and Significantly improved results in terms of time complexity
- **Used Technology: Deep Learning, OpenCV, Image Processing, TensorFlow, Python GitHub**

### Web Scraper

- Designed a web crawler that can scrape texts from websites using HTML parsing on source code
- Can extract images and HTML div(s) from websites
- A Flask app is wrapped around the crawler with a scraping option that takes links as inputs
- **Used Technology: Scrapy, BeautifulSoup4, Flask, Python GitHub**

## SKILLS

**Machine Learning** : Linear/Logistic Regression, Decision Tree, SVM, Naive Bayes, KNN, K-Means, Random forest, Deep Learning (CNN, RNN, R-CNN, VGG16, MobileNet, YOLO, Siamese Network, etc.)
**Languages** : C/C++, Python, GOLang, PHP, Java
**Frameworks** : Django, Flask, Laravel
**Libraries** : TensorFlow, PyTorch, OpenCV, Numpy, Pandas, Scikit-learn, etc.
**Platforms** : Kaggle, Colab, GCP, AWS
**Databases** : MongoDB, MySQL, SQlite, PostgreSQL
**Scripting** : LaTeX, HTML, CSS, Bash
**Version Control** : GitHub, Bitbucket, Jira

## AWARDS

**Academic Waiver** : Recipient of a **merit-based waiver of 25%** from **Summer 2017 semester** till graduation