Tahmid Chowdhury

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EDUCATION

RUTGERS UNIVERSITY

BS in Electrical and Computer Engineering
May 2020 | New Brunswick, NJ
Honors: Dean's List Spring 2018

ATLANTIC CAPE COMMUNITY COLLEGE

Degree Progress
Mays Landing, NJ
Honors: Dean's List Fall 2015, Fall 2016, Spring 2017, Fall 2017

COURSEWORK

COMPUTER ENGINEERING

Programming Methodology 1 (Intro to C++ and OOP)
Programming Methodology 2 (Data Structures and Algorithms)
Machine Learning for Engineers
Computer Architecture and Assembly Language
Quantum Computing

ELECTRICAL ENGINEERING

Principles of Electrical Engineering 1 (Circuits 1)
Principles of Electrical Engineering 2 (Circuits 2)
Linear Systems and Signals
Digital Signal Processing

MATHEMATICS

Single and Multivariable Calculus
Ordinary Differential Equations
Linear Algebra
Linear Programming
Discrete Mathematics

SKILLS

TECHNICAL SKILLS

Java • C • C++
Python • MATLAB
HTML • CSS • JavaScript
jQuery • Git/GitHub
Node.js • SQL

SOFT SKILLS

Bilingual Communicator (English, Bengali)
Public Speaker • Leader • Motivator

EXPERIENCE

RUTGERS UNIVERSITY | Peer Tutor

February 2020 – May 2020 | New Brunswick, NJ

- One-on-one C++ OOP tutoring for other Rutgers University peer students.
- Assisted students in weak areas within the subject, requiring weekly lesson plans for individual student needs.
- Leveraged Knowledge: Adaptation to students' various learning styles. Weekly plans outside of tutoring sessions honed organizational and time management skills. C++ and general OOP skills sharpened.

PROJECTS

MATERIAL CLASSIFICATION USING WIFI SIGNALS | Senior Capstone Project

- Used a modified Linux kernel with support for reading CSI from Qualcomm Atheros NICs.
- Collected data using NICs for various objects of different material types.
- CSI information was preprocessed by removing data packets based on payload length, removing outliers, and phase calibration through linear transformations. Sliding window method used to produce a more extensive set of data.
- KNN and support vector machines (SVM) algorithms implemented to train the machine learning model using 5-fold cross-validation with python.
- Project strung together various skills learned throughout undergraduate career, and developed teamwork and group coordination/communication.

PERCOLATION

- Model of a percolation system using an *n*-by-*n* grid of sites. The system *percolates* if one site at the top row is continuously connected to a site at the bottom row.
- The abstract model is used to describe many real world systems such as composite materials.
- *Percolation* uses weighted quick-union with path compression algorithm to create an *n*-by-*n* grid, open sites, and determine if a system percolates.
- *PercolationStats* determines the approximate *percolation threshold* of a system, the fraction of sites opened when the system percolates if sites are opened at random. No such exact mathematical solution exists to determine the threshold, displaying the usefulness of computers.

BAR CHART RACER

- The program produces an animated bar chart using a text file dataset from a command line argument and an integer k determining how many bars to display on the canvas.
- The *Bar* data type aggregates related information for use in a bar chart. The *BarChart* data type supports drawing static bar charts to standard draw.
- *BarChartRacer* uses *BarChart* and *Bar* to produce an animated bar chart.

MATRIX LIBRARY

- C++ matrix library consisting of the following operations: addition, subtraction, multiplication, determinant, and transpose.
- Use of nested loops, 2D arrays, dynamic memory allocation, classes and objects, and operator overloading.
- A header file is used for declarations and a makefile to compile/recompile the code.