Justin Italiano

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Education

Master of Computer and Information Technology — August 2023
University of Pennsylvania, Philadelphia, PA — Cumulative GPA: 3.84

Master of Science in Civil Engineering — May 2019
University of Massachusetts, Amherst, MA — Cumulative GPA: 4.0

Bachelor of Science in Civil and Environmental Engineering — December 2014
University of Massachusetts, Amherst, MA — Cumulative GPA: 3.53

Professional Experience

Transportation Engineer—DVRPC , Philadelphia, PA — May 2019—June 2022

- Applied a complex regional travel demand model to obtain forecasts for future traffic volumes and transit ridership in the Delaware Valley region.
- Developed a new post-processing Python script that read model run results and tabulated them into Excel files for later use in other analyses.
- Diagnosed and fixed model crashes and other computer bugs.
- Utilized MOVES, an emission modeling system, in conjunction with the regional travel demand model to determine the effect of transportation projects on regional air quality.

Research Assistant—University of Massachusetts, Amherst, MA — January 2018—May 2019

- Analyzed comprehensive operational data including mileage, GPS, on-time-performance, and fueling data from the Pioneer Valley Transit Authority Paratransit Van Service using R, SQL, and Excel.
- Developed a model to predict delay experienced by passengers using the paratransit service.
- Studied data from the Massachusetts Bay Transportation Authority and used a clustering analysis to predict how a passenger's choice of transportation was affected by an experimental pilot program.

Projects

Scrabble Game (Python):

- Created a scrabble game in Python using Pygame that enabled a user to compete against the computer.
- Implemented a trie data structure to store the dictionary and facilitate fast lookup of words and prefixes.
- Developed an algorithm that allowed the computer to generate high scoring moves extremely quickly.

PennSearch (C++, Group Project):

- Parsed network topology data and constructed a routing table for each node using link state and distance vector routing protocols in the NS-3 network simulator.
- Implemented chord, a distributed hash table, as an overlay network on top of the underlying routing protocol.
- Built a distributed hash table keyword-based search engine that read metadata files containing documents and keywords, published the data to the network, and performed distributed searches using chord.

Sudoku Solver (Python):

- Designed a program that read a partially filled sudoku board and used inference, the Arc Consistency (AC-3) algorithm, and backtracking to efficiently find a solution.

Covid-19 Data Analyzer (Java, Partner Project):

- Developed a Java program that parsed Covid-19 vaccination rates, property values, and population demographics for Philadelphia and performed various computations based on user input.

Coursework

Artificial Intelligence, Big Data Analytics, Natural Language Processing, Networked Systems, Computer Systems Programming, Algorithms and Computation, Data Structures and Software Design

Skills

Python, Java, C, C++, JavaScript, HTML, CSS, R, SQL, Git, Docker, PyTorch, Django