

# Justin Italiano

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## Education

### Master of Computer and Information Technology

University of Pennsylvania, Philadelphia, PA

August 2023

Cumulative GPA: 3.84

### Master of Science in Civil Engineering

University of Massachusetts, Amherst, MA

May 2019

Cumulative GPA: 4.0

### Bachelor of Science in Civil and Environmental Engineering

University of Massachusetts, Amherst, MA

December 2014

Cumulative GPA: 3.53

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## 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.
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## Projects

### Scrabble Game (Python):

- Created a scrabble game in Python using Pygame that enables users 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 allows 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.
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## Coursework

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

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## Skills

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