Liam Willis

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Education

- University of Massachusetts Boston | Bachelor of Science in Computer Science | 4.0 GPA | Expected June 2025
- Sturgis Charter Public School | High School Diploma | International Baccalaureate Diploma | 4.18 GPA | Graduated June 2021

Skills

- Python
- Java
- C/C++
- Assembly Language
- HTML/CSS
- Excel

Relevant Coursework

- Computing in Python
- Intermediate Computing with Data Structures
- Programming in C
- Calculus-Based Probability and Statistics
- Ethics in Computing
- Discrete Mathematics
- Linear Algebra
- Advanced Algorithms

Projects

PERCOLATION SIMULATION

- Created a percolation system simulation utilizing a union find data structure.
- The dimensions of a hypothetical percolation gid alongside the probability of any cell of the grid being filled are specified by the user, and the experimental percolation is compared to the mathematical expected probability of percolation.

KD-TREE IMPLEMENTATION

- Implemented a symbol table API whose keys are two-dimensional points using both a red-black binary search tree and a 2D-tree as underlying data structures.
- Supports search, insert, traversal, nearest-neighbor search, and k-nearest neighbor search operations.

AUTOCOMPLETE ALGORITHM

- Implemented a word auto-complete algorithm using historically determined string query weights. T
- Utilizes binary search to find likely queries which match the current user input and displays the likely queries in descending order of probability based on their respective associated weights.

Accolades

- Recipient of the Rensselaer Medal Award for outstanding achievement in Mathematics and Physics.
- Recipient of the 2021 Harbor One Community Scholarship for community service and academic achievement.
- Recipient of the UMass Amherst Cape Cod Alumni Network Scholarship for excellent academic performance.