Joseph R. Morrissey

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EDUCATION

University of Illinois Urbana-Champaign *Cumulative GPA:* ***3.93/4.00***

Bachelor of Science in Computer Science, Minor in Mathematics *Expected: May 2025*

Honors: Edmund J. James Scholar, Dean's List (All semesters)

Relevant Coursework

- Data Structures and Algorithms, Algorithms and Models of Computation, Deep Learning for Computer Vision, Computational Photography, Numerical Methods, Computer Architecture

Technical Languages

- C++, Python, Lua, HTML, CSS

WORK EXPERIENCE

Novaspect Inc. Schaumburg, IL

Software Engineer Intern *May 2023 – August 2023*

- Developed a historian synchronization microservice for an industrial automation software platform using TCP/UDP data pipes and Lua socket programming, resulting in a $5,000 client proof of concept
- Expanded over 100 endpoints for a remote debugging API to enable low latency integration with platform proprietary libraries, faster error detection and troubleshooting, and an overall smoother development experience
- Integrated an internal user story development interface with a microservice architecture platform using Lua and React JSON Schema to optimize Agile workflow and streamline client communication

CS 361 Undergraduate Course Assistant Champaign, IL

Probability and Statistics for Computer Science *August 2023 – Present*

- Answered students' questions on the course forum pertaining to probability, statistics, and their application to computer science
- Developed new homework questions to test students understanding of course content
- Graded homework questions of over 350 students

PROJECTS

Painting without Paint

- Implemented *Image Analogies* (Hertzmann et al.), which takes an unfiltered-filtered picture pair and an unfiltered image as input, and returns an output image that completes the analogy
- Generated feature vectors over the gaussian pyramids of the luminance channels of each image. Compared an approximate nearest neighbor search using a KDtree with a pixel that minimizes an objective function to find the best matching pixel for the output image
- Combined the Image Analogy method with two other group members implementation of *Color transfer between images* (Reinhard et al.), allowing us to produce images that mimic an artists' style
- https://github.com/jmorrissey23/Image-Analogies

Graph Algorithms and Visualization

- Implemented a breadth first search, shortest path algorithm (Dijkstra), and minimum cut algorithm (Stoer-Wagner) on a dataset that modeled Wikipedia articles as nodes and the links between them as edges
- Used a barebones graphics library and C++ to visualize the shortest path between two articles and the first 100 articles of a breadth first search
- https://github.com/jmorrissey23/Wikipedia-Analysis

ORGANIZATIONS

Association for Computing Machinery *Member (September 2021 – Present)*

Phi Gamma Delta Fraternity *Member (February 2022 – Present)*