Luke Jachimiec

Computer Science and MAthematics Undergrad

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EXPERIENCE

MONMOUTH COLLEGE SOFIA MENTOR/STUDENT **Monmouth, IL**

Student **Fall 2022 and Fall 2023**

- Worked in a small group to research and learn basic computer elements
- Built an 8-bit computer with very basic functionality using breadboards and small computer chips
- Gained experience with fundamental computer components

Mentor

- Led a small group through a research project, with the guidance of my professor
- Researched and built Ben Eater's 6502 Computer
- Programmed a simple Pong game on the computer
- Learned basic memory allocation, assembly programming, and the core elements of how a machine reads code and data to produce an output

MCDONALDS **Naperville, IL**

Crew Member **Apr 2022 - Aug 2024**

- Maintained high standards of customer service during high-volume work shifts and fast-paced operations.
- Resolved customer complaints in a professional manner.
- Upheld high standards of productivity and quality in operations.
- Drove team success by quickly completing assigned tasks.
- Fostered strong teamwork to enhance operational efficiency.

EDUCATION

Monmouth College **Monmouth, IL**

BA in Computer Science ***2022-2026***

BA in Mathematics

PROJECTS

- **Conway's Game of life** - with a small group we recreated Conway's Game of Life on a webpage, using html, css and javascript to learn web based application programming. The project can be found on my github page, or the webpage link here lukejac13.github.io/GameOfLife/
- **Sudoku Solver** - back in 2018, when I was learning C++ for the first time, I made a simple command line Sudoku Solver, where you could input your unsolved sudoku board, and if a solution existed, would automatically fill out the rest of your board with the solution. Then, in 2024, after my Game of Life project, I created the same Sudoku Solver application as a web page, shifting from C++ to JavaScript implementation. This project can be found on my github page, or at lukejac13.github.io/SudokuSolver/

COURSEWORK

All my completed classes as well as the course descriptions provided by Monmouth College

Computer Science

- **COMP-151: Intro to Programming** (Fall 2022)
  Introduction to Programming teaches basic programming skills that are applicable to a variety of disciplines and also acts as a bridge to continued studies in Computer Science. Students will work with the Python programming language in order to solve basic problems involving digital media: text, images, and sound. By the end of the course students will be able to read and develop computer programs utilizing the following programming concepts: basic data types and encoding, variables and scope, array and list data structures, if statements and conditional execution, loops and iteration, functions, and object types
- **COMP-152: Data Structures and Algorithms** (Spring 2023)
  A continuation of COMP 151 that explores the essential data structures and algorithms of modern computing, including lists, stacks, queues, heaps, and trees. Students will design, analyze, and build Python programs that implement and utilize these data structures to solve computational problems, including a thorough survey of sorting and search algorithms. These theoretical constructs are complemented by exposure to good software development practices, including data abstraction via abstract data types and object-oriented software design. Strong emphasis is put on analyzing and evaluating how implementation choices made by the programmer impact overall program performance and maintainability.
- **COMP-235: Intro to Systems Programming** (Fall 2023)
  An introduction to low-level programming and computer hardware organization from a software perspective emphasizing how application programmers can use knowledge of the entire system to write better programs. Introduces C and assembly language. Core topics include data representation, machine language, the memory hierarchy, and virtual memory. Further potential topics include processor architecture, code optimization, and concurrency.
- **Comp-240: Computer Applications** (Spring 2024)
  In Computer Applications students will work in small groups to develop three different computer applications. Each application will expose them to a different computer platform along with the tools and computing concepts used in development programs for that platform. The platform and purpose of each application will vary from year to year and instructor to instructor, but common choices of platforms include: the command line interface, the web, mobile devices, and high-performance computing. Students will maintain and develop their projects using GitHub or GitLab and Git version control software. Students will also engage in peer-review of the work of their team members and the other development teams in the course. Upon completing the course students will know how to apply basic software engineering practices in a small group setting, how to maintain software through the Git version control system, and have experience with tools and best-practices for developing modern software applications for three different computer platforms.
- **COMP-337: Computer Communications** (Spring 2024)
  This course introduces the fundamentals of computer networks. It focuses on the communication protocols used in computer networks, their functionality, specification, verification, implementation, and performance. The course also considers the use of network architectures and protocol hierarchies to provide more complex services. Existing protocols and architectures will be used as the basis of discussion and study.
- **COMP-310: Database Theory and Design** (Fall 2024)
  An introduction to the concepts and techniques of database systems. Includes history and motivation of database systems, data modeling, relational database, SQL, transaction processing, distributed databases.

Mathematics Classes

- **MATH-151: Calculus 1**(Spring 2023)
- **MATH-152: Calculus 2** (Fall 2023)
- **MATH-260: Discrete Mathematics** (Fall 2023)
  Topics include: sets and logic, number systems, properties of whole numbers, functions and relations, recursion, combinatorics and probability, matrices, and graph theory.
- **MATH-241: Linear Algebra** (Spring 2024)
  A study of finite dimensional vector spaces, linear transformation, and matrices.
- **MATH-317: Geometry** (Fall 2024)
  A study of such topics in advanced and modern geometry as non-Euclidean geometry, finite and projective geometries, isometries and transformation groups, convexity, foundations, and axiomatics.

SKILLS

- Software development
- Team collaboration
- Problem solving
- Java, JavaScript, Python, C, C++, C#, HTML/CSS, SQL
- Object-oriented programming
- Data structures and algorithms
- Database management
- Code debugging
- Technical analysis

ADDITIONAL INFORMATION

- Dean’s List - Fall 2022, Spring 2023, Spring 2024
- Computer Science Award: Introductory Sequence 2022 Recipient
- Research: Monmouth College SOFIA Project Student - Fall 2022
- Research: Monmouth College SOFIA Project Mentor - Fall 2023
- Member of Phi Delta Theta - Current Treasurer
- Member of Monmouth College Track and Field Team, 2022 - 2026
- Monmouth College Dean's Scholarship Recipient