Aubin Mugisha

Portland, Maine

aubin.mugisha@maine.edu | +1 207 263 8890 | **GitHub:** Aubin01

PROFESSIONAL SUMMARY

Computer Science senior with experience in full-stack development and AI-driven systems. Skilled in React, Node.js, Java, and Python. Passionate about building scalable and optimized solutions in Agile environments.

EDUCATION

UNIVERSITY OF SOUTHERN MAINE | B.S. in Computer Science | **GPA: 3.8**

Expected Graduation: May 2025 | Relevant Coursework: Data Structures, OOP, Algorithms in Java, Databases, Systems programming(C)

PROJECTS

Graph Traversal System Pathfinding and Social Networks

- Developed a python-based graph traversal system (BFS, DFS, A*) for NPC pathfinding and social network analysis.
- Built a social network analyzer integrating Dijkstra's algorithm to improve friend recommendations and community detection.
- Optimized graph storage and traversal efficiency with adjacency list/matrix implementations for different graph types

Ubuntu Information Retrieval System

- Built a Python IR system using PyTerrier to compare BM25 and TF-IDF models for querying Ubuntu docs.
- Evaluated performance with Precision, Recall, MAP, and nDCG metrics via Ranx, ensuring robust statistical comparisons.
- Optimized document indexing and response efficiency by streamlining batch/single-query processing.

Bi-Encoder & Cross-Encoder Travel Document Retrieval System

- Built a Python IR system using Bi-Encoder (retrieval) and Cross-Encoder (re-ranking) models, boosting precision by 15%.
- Measured performance via precision@1, MAP, nDCG@5, and MRR; visualized trends with ski-jump plots across 1000 queries.
- Fine-tuned PyTorch/sentence-transformers models and automated train/val/test splits for unbiased evaluation.

SKILLS

- **Programming Languages:** Java, JavaScript, Python, SQL, HTML/CSS
- **Frameworks/Tools:** React, Node.js, Git, WordPress, PyTerrier, Ranx
- **Languages:** English (Fluent), French (Intermediate)

WORK AND EXPERIENCE

Software Developer Intern

Wayside Publishing, Freeport, ME | December 2023 - August 2024

- Developed 3+ responsive web apps using React/Node.js, improving user engagement through optimized API performance.
- Collaborated with cross-functional teams (PMs, designers, QA) to translate user requirements into scalable front-end solutions.
- Reduced page load time by refactoring legacy code and implementing caching strategies, making the apps faster and more efficient
- Worked with SQL databases to manage and query structured data, optimizing backend performance and data retrieval
- Wrote and optimized unit/integration tests to debug and improve system reliability.

Innovate for Maine Intern

ReMo, Portland, ME | May 2023 - September 2023

- Enhanced app functionality by redesigning the UI/UX with React, leading to a solid increase in user retention.
- Conducted unit testing and debugging, reducing post-deployment bugs.
- Collaborated with developers to refine front-end performance and responsiveness
- Assisted in integrating new features based on user feedback and business requirements

Computer & Software Assistant

University of Southern Maine, Portland, ME | October 2022 - May 2023

- Automated software deployment for various Systems, reducing setup time.
- Resolved 15+ technical issues weekly for students and faculty.
- Provided troubleshooting support for hardware, software, and network issues.
- Assisted in maintaining and updating system documentation to streamline IT support processes

CERTIFICATIONS

- Oracle Certified Java SE 17 Developer

AWARDS & HONORS

- University of Southern Maine President's scholar scholarship
- University of Southern Maine Dean's list honors