Claire Marie Pare

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(650) 996 3368   Evanston, IL

EDUCATION

Northwestern University | Evanston, IL   Anticipated December 2024
    Master of Science | Computer Science
    Bachelor of Art | Computer Science, Integrated Science, Mathematics
    GPA | 3.85, Dean's List
    Relevant Coursework | Deep Learning, Agile Software Development, Database Systems, Machine Learning, Algorithm Design, Programming Languages, Data Structures, Discrete Mathematics, Differential Equations, Abstract Algebra

SKILLS AND PROJECTS

Programming Languages: Python, Java, Databases, SQL, JavaScript, C, C++, HTML\CSS, DrRacket, MATLAB, Scheme
Tools and Technologies: PyTorch, VSCode, React, Google Cloud, Firebase, Node.js, DBMS, Vitest, Cypress, Quest HPC Cluster, Jupyter, Docker, Agile, Scrum, Object-Oriented Programming, Test-Driven Development, Unix, Emacs, Repl.it, Terminal, GitHub, Companion Cognitive Systems

Full Stack Development of Campus-Engagement Applications   August 2023 – Present
- Spearheaded full-stack development of campus applications using React, Node.js, and Firebase, focusing on enhancing campus engagement. Implemented Agile and Swarm methodologies for efficient 3-week sprint cycles.
- Projects include NU Fridge: streamlining food management for campus kitchens, Wildcat Deals: promoting community shopping, and Wildcat Connect: centralizing event information for campus organizations.
- Integrated GitHub for version control, enhancing team collaboration. Applied Vitest and Cypress for comprehensive testing, ensuring application reliability. Adopted continuous integration for improved development efficiency.

Development of a Java-Based SimpleDB   September 2023 – Present
- Led the creation of SimpleDB, a complex Java project establishing a database system's core components from the ground up. This project involved developing a robust understanding of data structures, efficient data manipulation, and implementing concurrent programming techniques.
- Designed and implemented operators and representations for tuples and tables and developed a system for efficient data storage and retrieval.
- Implemented advanced multithreading and synchronization to develop a secure concurrency control system, integrating rigorous two-phase locking mechanisms.

Transcriptome Annotation Pipeline   June 2022 – January 2023
- Built an algorithmic pipeline to generate and annotate all the genome-coding regions, or transcriptome, of a rarely studied non-model organism, with applications in neurological temperature detection.
- Using SLURM Shell commands, harnessed Northwestern's Quest HPC cluster 900 nodes and 40,000 cores.
- Annotated over 18,000 gene sequences, a 120 megabase data set, leading to a transcriptome of 20,000 transcripts.

EXPERIENCE

Researcher, Physics Lab & Quantitative Biology Lab   April 2021 – January 2023
- Conducted research across two diverse fields: Optical Nanomaterials Physics and Quantitative Biology collaborating with teams of professionals to drive advancements in and genomics research.
- Developed 1) a method to twist 2D materials at fine precision to capture quasiparticles, and 2) finalized an annotated transcriptome of the snowfly, showcasing adaptability and proficiency in multi-disciplinary environments.
- Utilized tools such as cryogenic nano positioners, fine-tuned free-air laser setups, and high-performance compute clusters to analyze, interpret, and present data, leading to presentations, talks, and developed software.

Peer Mentor for Computer Science Classes   February 2023 – Present
- Dedicated over 6 hours a week mentoring 200 students in foundational and advanced computer science courses, including Data Structures, Algorithm Design, and Programming Languages
- Conducted weekly office hour sessions 6 hours, breaking down complex CS concepts and assisting students in handson programming assignments, debugging sessions, and software development tools, fostering real-world coding skills.
- Collaborated with professors and PMs to identify common areas of difficulty and develop targeted mentoring material, leading to an average 30% improvement in class performance.