Sari Pagurek van Mossel

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EDUCATION

- Queen's University Bachelors of Computing Honours with Minor in Film and Media
  - Achieved Degree with Distinction (Faculty of Arts and Sciences Dean's Honours List across all 4 years)

PROFESSIONAL EXPERIENCE

Software Development Engineer Intern, Amazon — June - Sept 2024

- Designed and implemented new full stack features to existing labour scheduling software within the Amazon Fulfillment Technologies organization, utilizing React.js and Java with Spring MVC
- Utilized AWS tools including Kinesis and DynamoDB in the design and creation of back-end APIs
- Conducted testing and applied software engineering principles to ensure code quality including code reviews, agile development, and technical documentation

Software Developer, Queen's Visual Cognition Lab (with Dr. Castelhano) — May - Dec 2023

- Developed research and data analysis software for cognition studies alongside psychology graduate students and professors
- Created and maintained Virtual Reality simulations using Unity and C# to collect and calculate fixation and saccadic movement data (precise eye movement metrics) for perception research
- Applied linear algebra concepts to transform 3D coordinate spaces and measure angles
- Designed and developed analysis software in Python using techniques including Hidden Markov Modelling, Switch-Point Analysis, and data processing with other Machine Learning libraries and open-source computer vision software
- Implemented analysis and calculation techniques from state-of-the-art research papers by collaborating professors

UX Design Intern, Goodself Co. — May 2022 - Aug 2023

- Held a lead responsibility in creating and updating app UI design features, prototypes, and user flows in Figma
- Spearheaded the designing of 3 major app features, communicating effectively with both product and development teams
- Efficiently conducted quality assurance testing using Github pull requests, bash shell scripting, and Xcode simulator

EXTRACURRICULAR & LEADERSHIP

Innovation Design Team Member, QMind — Sept 2024 - Continuing

- Collaborating on an undergraduate machine learning research paper to experiment with Gen AI and GANs (Generative Adversarial Networks) for super resolution photo reconstruction

Teaching Assistant, Queen's University School of Computing — Sept 2024 - Continuing

- Assisting students during office hours and marking programming related topics for third year computing courses

Vice Chair of HackHer, Queen's University Women In Computing — May 2024 - Continuing

- Coordinating the organization of the 2025 HackHer Hackathon, leading a team of 5 to carry out outreach and logistical planning

Web Designer, Queen's Computing Students Association — April 2023 - April 2024

- Designed and prototyped 3 user friendly websites using Figma to direct user traffic, maintain design style, and strengthen brand identity

Development Team Lead and User Experience Designer, Canadian Youth for Youth Empowerment — Jan - April 2023

- Managed and collaborated with a team of 5 developers to create a mental health based online platform using React.js

Web Developer, Queen's University Women In Computing — April 2022- April 2024

- Created mobile friendly pages and implemented new features to the organization's website using HTML, CSS, and JavaScript

PROJECTS

Computer Assisted Medial Patellofemoral Ligament (MPFL) Reconstruction: View on Github — 2024

- Collaborated with **Dr. James Stewart** to further his ongoing research in Computer Assisted MPFL Reconstruction surgery
- Computed a model of motion to simulate knee join dynamics using principal curvatures and muscular forces, with the goal of minimizing potential complications such as graft impingement on surrounding anatomical structures and ensuring graft isometry
- Developed using C++ and OpenGL

3D to 2D: Using Image Segmentation to Automate Rotoscoping for Animation: View on Github — 2023

- Using a U-Net Convolutional Neural Network structure to process live footage frame-by-frame to simplify the subject into 3 discrete shades as well as separate it from the background in an effort to create a base rotoscoped animated sequence

Heatmap Display for Eye Tracking Data: View on Github — 2022

- Implemented OpenCV and other Python libraries to calculate frame by frame coordinates and generate a heatmap visualization from given eye movement fixation and saccade data

SKILLS

Languages and Frameworks: HTML, CSS, Python, JavaScript, Java, Bash Shell Scripting, C, C#, C++, React.js, Processing, Git, SpringMVC, OpenGL

Software and Tools: Figma, Adobe Creative Suite, Unity, Cinema4D, Unreal Engine, Xcode

Creative: 2D/3D Animation, UI/UX Design, Motion Graphics, VR & Game Development

AWARDS

Creative Computing Showcase at Queen's University Best Art Project (2023)

HackHer (Queen's University Hackathon) First Place Category Winner in Food Insecurity & Social Good (2023)

Queen's University Principal's Scholarship for Academic Excellence (2021)

OCDSB Silver Medal given to averages of 90+ (2019-2021)

Ontario Scholar Award (2021)

Lisgar Collegiate Institute Michael Rust-Smith Memorial Award for Excellence in Arts and Science (2021)

Lisgar Collegiate Institute Award for Excellence in Visual Art (2021)