Bipon Roy

biponroy47@yahoo.com github.com/biponroy47 linkedin.com/in/biponroy 647-570-3728

EDUCATION

Western University
Sept. 2020 – Dec. 2026

Bachelor of Science, Computer Science + Co-op

Noteable Courses:
Data Structures & Algorithms, Operating Systems, Databases, Artificial Intelligence, Language Theory, Compilers

EXPERIENCE

Jennifer Kominek Interior Design
May 2023 – Sept. 2023

Front-End Web Developer Intern — Toronto

- Spearheaded the development of the company website from concept to launch using **React.js**, resulting in a **90%** increase in site viewership and a **2-minute** extension in audience retention
- Leveraged advanced **Google SEO** practices alongside **JavaScript** frameworks including **PhotoSwipe**, **Isotope**, and **Bootstrap** to enhance photo handling and layout specifications
- Optimized images with editing tools and implemented lazy loading with compression techniques, reducing data retrieval times by **50-200ms** while maintaining high resolution and clarity

Danforth Robotics Team
Sept. 2018 – May 2020

Software Engineer — Toronto

- Utilized **C++** and VexCode compiler to unify robotics modules, created custom blueprints and implemented computer vision engine to automate builds, increase precision, and reduce human error during competition
- Developed a custom motor handling proocedure enabling omni-directional movement enhancing the robot's efficiency, improving stack rate by **25%**, and achieved competitive performance in the top **95th** percentile

SKILLS

Coding Languages: Java, JavaScript, HTML/CSS, PHP, SQL, Python, C/C++
Libraries & Frameworks: React.js, Node.js, Express.js, TensorFlow, OpenCV, JQuery, Axios, REST API, Mongoose, Docker, Bootstrap, Isotope.js, Three.js
Developer Tools: Git, BASH/ZSH, NPM, MongoDB, MySQL, ESLint, Nodemon, Postman, SDK, SWT, QT, Vim

PROJECTS

Machine Learning Golf Swing Visualizer

- Built a web application allowing users to analyze their golf swing and compare them to professionals using AI models to track isolated movements, body part positions, and pathing
- Configured **TensorFlow MoveNet**, **PoseNet**, and **BlazePose** models using **MediaPipe** for video tracking, predictions, and for side-by-side machine learning model comparison
- Built and rigged a custom 3D human model using Blender and animated predicted movements using **Three.js**
- Implemented **WebGL** optimizations and reduced input frame resolution for increased prediction speeds

Emergency Alerts Monitor

- Developed an Android safety app using **Kotlin** and **Android Studio** to track and display real-time public emergencies, health hazards, and dangerous activities in local regions
- Configured BeautifulSoup, a **Python** web scraper to extract information from live feeds and used the Android Development Kit to simulate pre-deployment testing for different hardware and operating systems
- Performed local prototype testing on hardware for performance validation and seamless user interaction

String Encryption Sequencer

- A desktop tool built using **Java** and **Java Swing/SWT** implementing the substitution and Caesar shift algorithms
- Added random seed generation feature for custom encryption keys, enhancing versatility and cryptographic strength

Arduino Mars Rover

- Soldered a custom **PCB** using **Arduino Nano** and 2x **L293D** motor driver chips to manage power and logic
- Modified custom IR remote codes to implement motor drive logic and halt function to bypass built in repeat signal