

AHMED BILAL

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TECHNICAL SKILLS: **LANGUAGES:** C, C++, JavaScript, Kotlin, Java, Python, Processing, TypeScript
FRAMEWORKS/TOOLS: Android, Ruby on Rails, Flask, NumPy, OpenCV, Angular, Vue, React, JavaFX
DATABASES: MongoDB, PostgreSQL, Redis, MySQL

WORK EXPERIENCE

Christie Digitals • Software Engineer | Waterloo, ON | **Sept 2022 - Dec 2022**
[C++](#) | [OpenCV](#) | [Eigen](#) | [React](#) | [Redux](#) | [Express](#) | [MongoDB](#) | [Docker](#)

- Developed **SSTP** a single-shot calibration system, that uses a structured light **RGB** grid pattern, for **Mystique** software to accurately calibrate in **2D/3D projection-camera** mapping, resulting in a **90%** increase in efficiency.
- Implemented **striding** for **SSTP's** grid colours to eliminate conflicts in **SSTP's** intrinsics, improving decoding by **80%**, using **OpenCV's** blob detection, colour segmentation, and image thresholding.
- Utilized **Eigen** library for **C++** to apply bi-directional space **geometric distortion models**, to identify and filter incorrect geometric correspondences, improving geometric correction by **70%**.

Verto Health • Software Engineer | Toronto, ON | **Jan 2022 - May 2022**
[Ruby on Rails](#) | [Angular](#) | [Vue](#) | [Flask](#) | [Redis](#) | [PostgreSQL](#) | [Docker](#) | [Kubernetes](#)

- Designed the **Digital Twin platform** to support the **workflow** of self-collected **COVID-19** PCR tests, serving **5M+** patients and increasing client satisfaction by **90%**.
- Spearheaded the development of a **mobile health card scanner** to authenticate patients' appointments, reducing fraudulent online bookings by **60%**.
- Integrated **Brakeman** into **CI** pipeline for detecting security vulnerabilities, increasing security stance by **10%**.
- Reduced **API** endpoint latency by **80%** through refactoring lazy-loading, and fixing **'N+1'** **SQL** queries.

Building Blocks • Software Developer | Vancouver, BC | **April 2021 - Oct 2021**
[React](#) | [Redux](#) | [Node](#) | [Express](#) | [MongoDB](#) | [Postman](#)

- Integrated **JWT** stored on **HTTP-only cookies** using **express** middleware, improving user security by **80%**.
- Utilized **socket.io** for creating chatrooms, enhancing real-time interaction between **mentors** and **mentees**.
- Built email automation using **Nodemailer**, notifying users about new events, increasing web traffic by **40%**.

Broadridge • Software QA Analyst | Toronto, ON | **May 2021 - Sept 2021**

- Performed **500+** functional, regression, positive & negative testing for Broadridge's **R.Broker** software.
- Designed test cases throughout **Agile/Scrum SDLC** while improving **company-wide** testing standards.

PROJECTS

YouTracker | JavaScript | React.js **Jan 2023 - Feb 2023**

- A **chrome extension** using **Google YouTube Data API v3**, allowing viewers to see the performance of the channel and video they are viewing.

Straights : Poker Hand | C++ **Nov 2021- Dec 2021**

- A game of poker cards with **AI** opponents of varying difficulties, utilizing **SOLID** principles to ensure scalability.

Virtual Health | Processing| Java Mode **Sept 2020- Oct 2020**

- A platform for doctors-patient interaction and viewing patients **circle of care**, using the **OOP** paradigm.

Bacterial Plus| Processing| Java Mode **Feb 2020 - Mar 2020**

- Observes generational changes in bacterial conjugation for **3** different environments & up to **10,000** bacteria.

EDUCATION

University of Waterloo • Bachelor's in Computer Science **Sept 2020 - Sept 2024**

- Cumulative GPA: 3.7/4 , Specialization in **Artificial Intelligence**