Joseph Al Fartosy

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Education

University of Alberta   **Graduation date: April 2025**
Bachelor of Science in Computer Science   *Edmonton, Alberta*

Relevant Coursework

- Data Structures
- Software Methodology
- Algorithms and Data Structures
- Database Management
- Artificial Intelligence
- Systems Programming
- Computer Architecture

Experience

Student Team for Alberta Rocketry Research   **September 2023 – Present**
Software Developer — Java, Python   *Edmonton, AB*

- Developed Simulation Software: Accuracy to create advanced simulation models for analyzing and predicting rocket trajectories and flight patterns, contributing to efficient and **90%** rocket design. **Development, Testing** Team
- Implemented Advanced AI Algorithms: Leveraged Python along with machine learning frameworks such as PyTorch and TensorFlow to develop AI models, focusing on achieving autonomy in **3** rocket and rover navigations and operations.
- Autonomous System Development: **Integrated AI models** into rocket and rover systems to accomplish autonomous navigation, data acquisition, and operational tasks, optimizing for efficiency and reliability. **More effective by 35%**

Projects

EasePal - Full Stack Application | *Node.js, Express, MongoDB, React, TypeScript, Vite*   **Jan 2024**

- Developed "EasePal," a full-stack web application designed to assist individuals with personalized exercise and stretching routines. Utilized **Node.js** and **Express** to build a robust backend achieving. **99.9% uptime.**
- Implemented advanced user authentication and security features using **bcrypt** for password hashing and **JSON Web Tokens (JWT)** for secure, stateless authentication. Enhanced application security and cross-origin resource sharing (**CORS**) management, ensuring secure and **flexible API communication** between the frontend and backend. **RESTful API Development.**
- Leveraged **MongoDB** for efficient data management, handling over **5,000** unique user data entries. Utilized **Mongoose** for efficient data modeling and handling. Implemented **CRUD** operations to manage user data and exercise routines resulting in a **30% faster** data retrieval and update process.
- Leveraged Vite for frontend development, **accelerating the build process by 40%**. Successfully deployed the frontend on **Vercel** and **backend** on Heroku, demonstrating proficiency in **cloud-based hosting** and application deployment. 🔗 EasePal

Rock-Paper-Scissors AI Game | *TensorFlow, OpenSv, Javascript, Python, Flask*   **August 2023**

- Developed a dynamic AI-powered Rock-Paper-Scissors game, training the model on a dataset of **500+ photos** resulting in a **92% prediction accuracy** against user moves.
- Leveraged **Python**'s robust libraries and **TensorFlow**'s deep learning capabilities to create an algorithm that continually adapts to user strategies, offering an ever-evolving gameplay challenge. 🔗 RPS game

eLibrary | *Javascript, React, Express*   **August 2023**

- Developed a comprehensive eLibrary Platform, leveraging React for seamless front-end user experiences and **Express.js** to establish a robust back-end service, enhancing the overall functionality and responsiveness of the platform. **4+ Star Books** Letting users sort books by **4 Different** methods. Used flexible API communication to receive books to display.
- Utilized **React** to create dynamic, intuitive, and user-friendly interfaces, enabling users to navigate, access, and manage a vast collection of electronic resources efficiently. Link for the eLibrary Platform: 🔗 eLibrary

ePortfolio | *Javascript, Html, CSS*   **September 2023**

- Created a professional ePortfolio to showcase my skills, experiences, and projects, serving as a dynamic, interactive resume for prospective employers. Dark mode feature implemented with **Javascript**. Link to page: 🔗 My ePortfolio

Technical Skills

Languages: Python, Java, C/C++, JavaScript, SQL, HTML/CSS, GoLang, Typescript

Skills: Data Science, Software Engineering, Frontend, Backend, Agile Methodologies, Artificial Intelligence, Machine Learning, Systems, Game engines, Web Applications, Data Scaling Techniques, Unit Testing, Continuous Integration, Development(CI,CD), RESTful API Development, Secure Authentication Systems, State Management in Frontend Applications

Developer Tools/Frameworks: React, NodeJs, ExpressJs, Docker, Pytorch, Opencv, Flask, Git, Firebase, MySQL, MongoDB, Mongoose, Vite, Material-UI, JsonWebToken(JWT), Bcrypt, AWS, Linux, VS Code