Joel Varghese

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EDUCATION

McMaster University Hamilton, ON
Bachelor of Applied Science - BASc Computer Science, Honours Co-op *Sept. 2020 – May 2025*
- 3x Deans' Honour List award (2020-2023), McMaster President's Award
- GPA : 3.72/4
- Relevant Coursework: Algorithms and Complexity, Data Structures, Automata and Computability, Concurrent Systems, Databases, Computer Architecture, Operating Systems, Principles of Programming Language, Software Requirement and Security Considerations, Data Mining, Computer Networks and Security, Compilers

EXPERIENCE

Software Developer Co-op Jan 2024 - Aug 2024
ATS Automation (C#,ASP.NET,React,TypeScript,Azure,Docker,SQL) *Cambridge, ON*
- Integrated Locker and designed a licensing system with unique IDs for enhanced security and license key validation
- Used regex to update Grafana-style URL parameters, enhancing link sharing with real-time filter adjustments.
- Designed and developed 18 API endpoints for data retrieval, user management, and system integration.

Software Engineering Co-op May 2023 - Dec 2023
Evertz Microsystems (Python,JavaScript,Ansible,Git,AWS(S3),Postman) *Burlington, ON*
- Led development of ensuring Evertz Project StreamPro's offline functionality, boosting availability by 95%.
- Developed and integrated a per-channel bin list specification feature to enhance playout system functionality
- Designed and implemented secure and efficient index searching in our playout system with authentication
- Used Ansible to streamline and automate deployment, reducing manual effort by 90% and minimizing errors.

PROJECTS

Algorithmic Stock Trading | *Python* Aug 2022 – Feb 2023
- Implemented current day Buy/Sell decisions in a open source algorithmic trading project
- Worked with yfinance library to get historical financial data from Yahoo Finance for backtesting
- Used moving average window as 50 which resulted in 500%+ increase in profits for some stocks like AMZN, AAPL when compared to a simple buy and hold strategy of last 15 years.

Image Generator | *Python* Dec 2022 – Jan 2023
- Utilized DALL-E-2 api from OpenAI to create AI generated image from text description
- Implemented GUI using tkinter and used PIL for opening, manipulating and saving different image formats
- Added saving functionality to save the AI generated images to local device

ToDo List | *MongoDB, Express, React, Node.js* May 2022 – Aug 2022
- Developed a full-stack ToDo List application using the MERN stack.
- Added removing, editing and task complete functionality which updates in MongoDB Atlas
- Deployed the application on Heroku and Netlify for live access.

Pathfinding Visualization | *Python* June 2022 – July 2022
- Enhanced pathfinding efficiency by 60% using the A* algorithm.
- Implemented wall placement functionality to navigate obstacles between start and end points.
- Added controls to start or reset the pathfinding algorithm via interactive buttons.

Crowd Density Heatmap | *Python* Aug 2024 – Aug 2024
- Led a team of 3 to develop a crowd density heatmap application using OpenCV,Tkinter,Pillow, and YOLOv3
- Implemented YOLOv3 algorithm for detecting people in videos and generating heatmaps based on their locations
- Developed a Tkinter GUI for video uploads, heatmap adjustments, detection highlights, and video saving.

TECHNICAL SKILLS AND PROFESSIONAL CERTIFICATES

Languages: Python, SQL,C#,C, JavaScript, Java, Typescript, Go, HTML/CSS, Haskell, ELM, Matlab
Frameworks: Express.js, Node.js, ASP.NET, FastAPI, Angular
Dev Tools: Git,Docker,Azure,MySQL,AWS(EC2,S3),MongoDBCompass,VSCode,Linux,Postman, Heroku,VMware
Libraries: React, Pygame, NumPy, Matplotlib, yfinance, OpenCv, Mongoose, Material-UI, pandas
Certificates: AWS Certified Cloud Practioner