

# HARSHAVARDHANA MUDDULURU

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## EDUCATION

- **Masters in Applied Computer Science, Computer Science** *Sep 2022 - Aug 2024*  
*Concordia University* *Montreal, Canada*
- **Bachelor of Engineering, Computer Science** *Aug 2018 - Jun 2022*  
*Anna university* *Chennai, India*

## WORK EXPERIENCE

- **Business Analyst Intern – Vosyn, Toronto** *Jan 2025 – Present*
  - **Developed Lean Canvas Model:** Conducted market analysis & competitive benchmarking to identify core business problems, proposed quantum-inspired solutions & **define unique value propositions** for VosynCore’s multilingual, multimodal platform.
  - **Crafted Software Architecture:** **Designed scalable, modular architecture** integrating quantum-inspired processing techniques for real-time translation, cultural adaptation, multimedia synchronization.
  - **Collaborated with cross-functional teams** to translate business goals into actionable technical requirements, ensuring efficient implementation of end-to-end workflows. Facilitated **communication** between product development & marketing ensuring alignment on product vision & delivery timelines.
  - **Optimized Revenue Streams:** Identified revenue opportunities through tiered subscription models, API-based pay-per-use services, and industry-specific customization packages. Established performance indicators, including translation accuracy, cultural adaptation effectiveness & scalability benchmarks, ensuring alignment with business objectives & user expectations.
- **Data Analyst (Part-Time) – PA Supermarche** *Sep 2022 – Aug 2023*
  - **Analyzed weekly sales** trends with Pivot Tables, identifying high-demand products to optimize stock levels & minimize waste.
  - Performance Reporting: Created automated Excel reports to track key metrics, **delivering actionable insights** to management.
  - Insights: Used data-analysis to uncover purchasing patterns, supporting market strategies to enhance customer satisfaction.
  - Forecasting: Assisted with **demand forecasting** to improve inventory management & **reduce overstock**.
- **Data Information Management Analyst Intern – Citi, India** *Jun 2021 – July 2022*
  - Ensured **consistency & integrity** of organizational data by performing quality checks, **data cleansing & validation** databases.
  - Designed & delivered reports supporting company’s decision-making. Provided actionable insights to senior stakeholders.
  - Monitored & maintained large datasets in SQL databases, ensuring timely updates & compliance with organizational policies.
  - Developed Excel macros & **automated workflows** to optimize data processing tasks, **reducing manual effort by 30%**.
  - Partnered with cross-functional teams-risk management & IT, enhancing data governance & support enterprise-wide projects.
- **AI Engineer Intern – Bennett University** *Dec 2019 - July 2020*
  - Collaborated to develop drone-based search and rescue system using **3D Convolutional Neural Networks (3DCNN)** and **Single-Shot Detector (SSD)** networks to detect distressed individuals from drone video feeds.
  - Coded the system to identify people waving for help, **extract their GPS coordinates**, and send the data to a central database. The system also **reduced redundant data by cropping & storing unique human figures**.
  - Single-Shot Detector (SSD) was utilized for rapid & **precise human detection**, significantly **optimizing system’s responsiveness & efficiency** in time-sensitive rescue missions, ensuring timely identification & response to critical situations.
  - **Mean Squared Error (MSE)** was employed to perform detailed similarity checks, **ensuring high accuracy in distinguishing & comparing detected human figures**, thereby effectively reducing redundant data & improving overall system performance.

## ACADEMIC PROJECTS

- **Comparative Analysis of Augmenting Route Algorithms in Graph Networks | Java, Git** *Sep 2023 - Nov 2023*
  - Conducted comparative analysis of augmenting route algorithms, including Shortest Augmenting Path, DFS-like, Maximum Capacity, & Random Path, to optimize maximum flow in graph networks, evaluating their performance in terms of efficiency.
  - Implemented **Ford-Fulkerson** as foundational algorithm, achieving a **7% efficiency** improvement with SAP & **5% efficiency** with **DFS-like algorithm** in sparse networks, effectively reducing iterations & computational complexity.
- **Open Tracks Concordia | Java, Android, Maven, Git, Agile** *Jan 2023 - Apr 2023*
  - Improved open-source real-time application by **adding weather-display & fixing bugs** to enhance user experience.
  - Integrated Weather APIs to fetch & incorporate external weather data, providing **real-time updates** within app.
- **Flight Data Analysis using MPI and Docker | Python, MPI, Docker** *Sep 2022 - Dec 2022*
  - Developed Python scripts to analyze data, utilizing **Message Passing Interface (MPI)** enabling efficient data distribution.
  - Created a Docker environment with multiple containers & analyzed efficiency of script with different numbers of containers to implement Distributed System Design concepts like **parallelism, fault tolerance, scalability**.
- **Real-Time Driver Drowsiness Detection System | python, NumPy, OpenCV, Keras, DL** *Aug 2020 - Oct 2020*
  - Developed alert system to detect & monitor driver drowsiness, reducing response time to fatigue **within 2 seconds** & addressing major traffic accident causes by providing real-time alerts & enhancing road safety.
  - Employed **OpenCV** for real-time eye movement analysis, enabling precise detection of driver eye states. Used **Keras** to build & train deep learning models (VGGNet, ResNet), achieving **93% accuracy** in drowsiness detection.

## CORE SKILLS

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- **Technical Skills:** Python, Java, C, C++, HTML/ CSS, JavaScript, Git, Agile
- **Data Science & Machine Learning:** NumPy, Pandas, Scikit-Learn, OpenCV, Matplotlib, Computer Vision, Predictive Analysis, Keras, Tensorflow, Pytorch, Machine Learning (ML)
- **Visualization Tools:** Microsoft Power BI, Tableau, Microsoft Excel (Advance)
- **Technology & Collaboration Tools:** Docker, GitHub, Lucid, JIRA, Microsoft 365, SharePoint Online, Power Apps
- **Database Management:** ETL, MySQL, Data Mining
- **Soft skills:** Innovative, Communication, Teamwork, Committed, Analytical, Flexible, statistical, Problem-solving, Time Management, Cross-Functional

## CERTIFICATIONS

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- **Deep Learning for Computer Vision** - *Certified by NVIDIA Deep Learning Institute*
- **Preparing Data for Analysis with Microsoft Excel** – *Certified by Microsoft*