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

- **Technical Skills:** Python, Java, C, C++, HTML/ CSS, JavaScript, Docker, 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)
- **Database Management:** ETL, MySQL, Data Mining
- **Soft skills:** Innovative, Communication, Teamwork, Committed, Analytical, Flexible, statistical, Problem-solving, Time Management, Cross-Functional

CERTIFICATIONS

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