Shruti Gupta

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EDUCATION

University at Buffalo, The State University of New York Aug 2022 - Feb 2024
Master of Science, Computer Science and Engineering *GPA : 3.92/4.0*

Guru Gobind Singh Indraprastha University Aug 2018 – June 2022
Bachelor of Technology, Computer Science and Engineering *GPA : 9.1/10.0*

EXPERIENCE

Research Assistant May 2023 – Present
University at Buffalo *Buffalo, NY*
- Led testing and validation for Pirouette, a novel typed higher-order functional choreographic language.
- Advanced programming language theory through rigorous proofs and theorem exploration.
- Developed compiler components, including Lexer and parser modules.
- Implemented backend functionality in OCaml, using socket programming and UDP/TCP protocols for distributed systems communication.

Data Science and Business Analyst Intern Jul 2021 – Aug 2021
The Sparks Foundation *Delhi, India*
- Conducted data analysis and preprocessing on banking and property datasets, using advanced data cleaning techniques.
- Applied machine learning models (random forest, clustering, regression) to extract insights and drive informed decisions.

TECHNICAL SKILLS

Languages: Python, C/C++, SQL (Postgres), Ocaml, JavaScript, HTML/CSS, Java, Idris
Frameworks: React, Node.js, Flask, OUnit, WordPress, Hadoop
Developer Tools: Git, Docker, Google Cloud Platform, VS Code, Visual Studio, PyCharm, Jupyter Notebook, Eclipse
Libraries: Pandas, NumPy, Keras, MatPlotLib, PySpark, Seaborn, SciPy, SciKit-Learn, TensorFlow

PROJECTS

Content Recommendation Systems May 2023 - Jul 2023
- Performed data cleaning and exploratory data analysis on a Netflix dataset using Python, Pandas, and NumPy, revealing hidden patterns and valuable insights.
- Improved data processing efficiency by 30% utilising tools such as Hadoop, PySpark, and Spark.
- Achieve 90% accuracy in recommendations leveraging TF-IDF for text analysis, increasing content discovery.

Hospital Management Systems Jan 2023 - May 2023
- Guided UI design with HTML/CSS and Flask-based backend for healthcare professionals, optimizing data access.
- Enhanced Data Accuracy and Compliance in PostgreSQL with Scalable Architecture
- Developed and programmed a dynamic website integrating with our database, providing real time query visualization and results display.

Real-time Sign Language Interpreter Jan 2023 - May 2023
- Developed a system using CNNs and LSTMs, achieving 85% accuracy in translating ASL gestures to text and speech
- Processed the How2Sign dataset (21K+ videos), performing frame extraction and feature analysis.
- Implemented CNN for 87% accurate gesture recognition and LSTM for sequence classification, with a 10% dropout for regularization.

PUBLICATIONS

AI-based security protocols for IoT applications: A critical review (September 2022) - Recent Advances in Computer Science and Communications [Journal Article]
College Recommendation System Using K-Means Algorithm (2022) - Advances in Systems Analysis, Software Engineering, and High Performance Computing [Journal Article]