Satvik Pandey

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EDUCATION

University of Illinois Urbana-Champaign Aug 2022 – Dec 2023
Master's in Computer Science **GPA – 3.8/4.0**

Manipal University Jaipur, India Aug 2018 – May 2022
Bachelor of Technology in Computer and Communications **GPA – 9.1/10**
Recognized for Academic Excellence with a medal for being in the top 5% of my graduating class.

SKILLS

- Programming Languages – Python, Java, R.
- AI - Pytorch, Tensorflow, Scikit-learn, NumPy, Pandas, OpenCV
- Advanced Analytics: Predictive Modeling, Text Mining, Recommender Systems, Time Series Analysis.
- Visualization - JMP, Tableau, Dash, Matplotlib, Seaborn
- Big Data Technologies- Hadoop, PySpark, SQL, MongoDB,
- MLOps/AutoML - MLflow, AWS Sagemaker, Auto-sklearn.

PROFESSIONAL EXPERIENCE

Reliance Jio, Mumbai, India Jan 2022- May 2022
Machine Learning Intern

- Developed advanced algorithms for data augmentation using **GANs** and **NSTs** on the **PyTorch** framework, improving model accuracy by 8%. Leveraged **AWS** for scalable deployment, demonstrating skills in cloud integration and feature engineering.
- Deployed the tool on AWS successfully utilizing services like **EC2, Lambda, and S3** for scalable storage and computation. Tested it on out inhouse Logo Detection Algorithm and visualized up to an 8% accuracy boost on it after augmentation.
- Developed a flexible **REST API using Flask framework**, with support for multiple image types at endpoints, and deployed to enable seamless internal access and integration with other teams.

Olivecloud Tech, Calcutta, India May 2021 – Aug 2021
Data Science Intern

- Optimized web content **SEO** using advanced **NLP** techniques like **sentiment analysis and keyword extraction**, resulting in a 12% traffic increase and a 15% SERP ranking improvement.
- Conducted deep keyword research with **Python, NLTK, and Latent Dirichlet Allocation**, integrating findings via automated text summarization, boosting keyword relevancy and engagement by 20%.
- Developed predictive models using **scikit-learn and TensorFlow** to increase retention by 10%, and engagement by 15%.

Auburn Digital Solutions, Mumbai, India May 2020 – Sept 2020
Data Analyst Intern

- Executed complex **SQL** queries to manipulate large datasets, facilitating precise data analysis for marketing decisions.
- Executed complex SQL queries and analyzed large datasets with Looker, demonstrating data mining techniques and statistical analysis to derive actionable marketing insights.
- Designed 8 **Tableau** dashboards for stakeholders, collaborating on **data-driven** initiatives to optimize website UX.

PROJECTS/RESEARCH EXPERIENCE

Forward Data Lab – University of Illinois Urbana-Champaign May 2023-Aug 2023
Graduate Researcher – Development Team

- Spearheaded research on advanced NLP methodologies to develop a Retrieval-Augmentation Generation(RAG) based search engine that holistically finds information across many documents related to academic setting. Utilized **LLMs** like **GPT and Llama** to generate intelligent snippets while giving each source document's relevance and citations.
- Implemented and fine-tuned the model utilizing **BERT, Flair, and Word2Vec embeddings**; achieved enhanced sequence-to-sequence mappings with BERT, increased model robustness by 10% with Flair, and boosted semantics by 8% with Word2Vec.
- Designed an end-to-end **automated pipeline** using FAISS for efficient vector search, facilitating the generation and evaluation of over 1 million test data points, which reduced evaluation time by 40% and heightened benchmarking efficiency.

Project: Non-Contact Heart Rate Monitoring using Video Analysis (Final Semester Project for ML for Signals at UIUC)

- Developed a non-contact heart rate estimation system using **photoplethysmography** (PPG) principles, applying computer vision techniques like **MTCNN** on facial video data to detect minute color changes correlated with blood volume variations.
- Implemented advanced face detection algorithms and **Independent Component Analysis** (ICA) to separate the heart rate signal from background noise, achieving heart rate measurement accuracy within ±5 bpm.

Project: IntelliAbstract – A Text Summarizer Chrome Extension (Capstone Project at UIUC)

- Developed a **Chrome extension** for text summarization using fine-tuned **BERT and BART models**, outperforming non-ML methods. Implemented key algorithms within a Flask framework for efficient extraction of key information from web pages. Ensured **high ROGUE and F1 scores** through advanced NLP techniques.