

# Srimanth Agastyaraju

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## Education

### Indiana University Bloomington

MS in Data Science; GPA: 3.95

Relevant Coursework: Computer Vision (A), Applied Algorithms (A), Exploratory Data Analysis (A-), Elements of Artificial Intelligence (A), Applied Machine Learning (A+), Introduction to Statistics (A).

Aug 2021 — May 2023

Bloomington, Indiana, USA

### Sreenidhi Institute of Science and Technology

Bachelor of Technology in Computer Science; CGPA: 3.83

Aug 2016 — Jun 2020

Hyderabad, India

## Experience

### Indiana University Bloomington

Research Assistant

May 2022 — Present

Bloomington, Indiana

- Designed an end-to-end image upscaling model while maintaining remarkable image quality (a structural similarity index of 0.9).
- Implemented state-of-the-art deep learning models from well-cited research papers using NumPy, Pandas, Scikit-Learn and PyTorch.
- Devised an image patching framework to augment training data from 800 to 500,000 samples.
- Utilized multiple GPUs by implementing parallel processing and reduced training and inference time by 50%.

### Accenture

Full Stack Development Analyst

Sep 2020 — Apr 2021

Hyderabad, India

- Eliminated 80% of the manual effort by incorporating image processing data from the scannable PDFs for customer remediation.
- Utilized Python for exploratory data analysis on customer data to analyze relationships in the data originating from multiple systems.
- Streamlined a MEAN stack application for an analytics platform to automate reporting jobs and reduce manual work by 20%.
- Launched a web application using Full Stack Web Technologies such as MongoDB, Node.js, Express, Angular.js, and React.js.
- Modelled a POC REST API (JSON) using Node.js and accessed it in a React app using Axios.

### WebleApps Pvt. Ltd.

Software Development Intern

Jan 2020 — Jun 2020

Hyderabad, India

- Revamped a Java-based Android application using Agile methodologies to follow MVVM architecture and reduce bugs by 30%.
- Streamlined the data exchange between client and server for an application using REST API (Retrofit2 and GSON).
- Spearheaded a POC app for OCR using MLKit to automate the parsing of pages and expedited the process by 40%.
- Engineered a website using Spring Boot and PostgreSQL from the ground up.

## Projects

**Deeply Supervised Depth Map Super Resolution** | Python, PIL, NumPy, Pandas, Open-CV, WandB, PyTorch

Jun 2022

- Translated the research paper ([DSDMSR](#)) to Python code and performed MLOps over 50 experiments.
- Achieved a peak signal-to-noise ratio of 24 over a scale factor of 8.

**Roof Segmentation from Aerial Imagery** | Python, NumPy, Pandas, Plotly, Dash, PyTorch

May 2022

- Pioneered a PyTorch model to perform image segmentation on roofs from satellite imagery worth 20 GB.
- Performed experiments on several architectures such as SegNet, U-Net, and UNet++ to reach a dice score of 86%.

**Optical Character Recognition using Probabilistic models** | Python, PIL, NumPy

Nov 2021

- Deployed a Bayesian network and a Hidden Markov Model to achieve an accuracy of 94.2% over novel data.
- Implemented Viterbi algorithm for Maximum A Posteriori (MAP) inference to predict the final character sequence.

**Sentiment Analysis of YouTube Comments** | Python, NumPy, Pandas, Plotly, NLTK, SpaCy, Scikit-Learn

May 2020

- Achieved an accuracy of 88% over novel data by extracting data using YouTube Data API v3.
- Developed using NLP techniques such as Stemming, TF-IDF, Word2Vec, Logistic Regressor, and XGBoost.

## Technical Skills

**Programming Languages:** Python, R, PostgreSQL, HTML, CSS, JavaScript (Angular, React, Node), Java.

**Developer Tools:** AWS (EC2, S3), VS Code, RStudio, Docker, Git, Linux (bash, zsh), LaTeX, Jupyter, Postman, Jira.

**Technologies/Frameworks:** NumPy, Pandas, Matplotlib, Seaborn, Plotly, Dash, Scikit-Learn, PyTorch, NLTK, SpaCy.

**Machine Learning Algorithms:** KNN, Linear Regression, Logistic Regression, Decision Trees, Random Forests, XGBoost; t-SNE, PCA; CNN, LSTM, EfficientDet; Bayesian Inference, Hidden Markov Models; Hypothesis testing, A/B testing.