Varun Srivastava

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Education

Arizona State University	**Aug. 2021 – Present**
Ph.D. in Industrial Engineering	*Tempe, AZ*
Purdue University	**Aug. 2017 – Dec. 2018**
M.S. in Industrial Engineering	*West Lafayette, IN*
SRM University	**July 2013 – May 2017**
B.S. in Mechanical Engineering	*Chennai, India*

Technical Skills and Certifications

Programming languages and Databases: Python, R, MySQL, JavaScript, HTML/CSS, CPLEX
Analytics and Simulation Tools: Tableau, MATLAB, SAS, MS Excel, Minitab, ARENA
Technologies/Frameworks: React, Node.js, ArcGIS, AWS, Apache Airflow
Certifications: Lean Six Sigma Green Belt (KPMG)

Professional Experience

GreenChoice	**January 2019 – April 2021**
Data Scientist	*Boston, MA*

- **Information Retrieval and Product Classification:** Developed an NLP model using PyTorch to classify unstructured online grocery product data into 518 classes using an AWD-LSTM-based transfer learning model, ULMFIT. The updated schema improved analysis of consumer behavior, effective marketing campaigns, and increased conversion rates.
- **Recommendation Engines:** Implemented a recommendation engine with a model-based collaborative filtering approach, leveraging user and product-level data. The system drove user engagement, reduced churn, and enhanced automated product substitutions on the company's online grocery marketplace.
- **Data Visualization and Dashboards:** Designed automated, interactive dashboards using Tableau and Python (Seaborn and Plotly) to analyze product and user-level metrics with descriptive statistics. Critical insights identified new app features, increased weekly active users, and boosted recurring revenues.
- **Data Engineering and Warehousing:** Led the design of relational database models, extracted data from multiple sources, warehoused on AWS servers, and analyzed using MySQL queries. Automated the entire ETL pipeline using Apache Airflow for streamlined data processing.

Carbon Solutions LLC.	**May – August 2023**
Research Associate Intern	*Tempe, AZ (Remote)*

- **Decision Support System:** Developed a web-based visual analytics framework integrating data visualization, multi-criteria analysis, and spatial optimization for decision support in capture, storage, and transport of CO2 emitted from industrial processes.
- **Interactive Cartography:** Utilized JavaScript (React, D3) to craft multi-layer map views, linked views, and glyph maps. This significantly improved report generation and decision-making by enhancing the interpretation of high-dimensional data and geospatial networks.
- **Workflow Automation:** Integrated proprietary mixed-integer programming models using Python (Flask) on the backend. Implemented a continuous improvement/continuous deployment pipeline using AWS S3, EC2, and Heroku framework, achieving enhanced data management, accelerated loading speeds, and improved accessibility for stakeholders.

Academic Experience

Arizona State University	**August 2021 – Present**
Graduate Research Assistant	*Tempe, AZ*

- Research on Geospatial Deep Learning, Explainable AI, and Decision Making under Uncertainty at the Visual Analytics and Data Exploration Research (VADER) Lab with Dr. Ross Maciejewski.

Purdue University	**August – December 2018**
Graduate Teaching Assistant	*West Lafayette, IN*

- Drafted solutions using R Studio and graded homework for 15 graduate students, and gave detailed feedback and classroom presentations for the course Multivariate Analysis in Organizational Research.
- Assisted the professor in drafting homework assignments, reviewing project submissions, and completing final grading.

Purdue University **January − May 2018**

Graduate Research Assistant *West Lafayette, IN*

- Used R Programming to automate fixed-effects model analysis of neural stimulation data from experimental animals.
- Developed R Shiny app that conducts ANOVA analysis to examine the effect of different feeding mechanisms on the activation of stomach regions for rats.
- Upgraded the first version of the app to enable spatial mapping of data, and easy downloads of analytical results.

Project Highlights

Detecting crop types using Sentinel-2 remote sensing data | *Python* **August − December 2022**

- Extracted features, including band reflectance values and vegetation indices, from Sentinel-2 multispectral satellite data to classify crop types on small farms in Northern India using artificial intelligence.
- Implemented SMOTE to address the class imbalance, comparing random forest, support vector machines, XGBoost, and artificial neural network. Achieved an 82% overall accuracy (OA) with the best-performing model.

Predicting destination country for first time users of Airbnb | *R Studio* **January − May 2018**

- Implemented classification algorithms such as Random Forest, Boosted Trees, Logistic Regression, and Support Vector Machine on demographic and session data of past users to predict the destination country of new users.
- Used a two-layered classification system to deal with highly imbalanced data, and attain good model performance.

Best matching of players in online gaming using optimization algorithms | *Python* **August − December 2017**

- Algorithms such as Genetic Algorithm, Ant Colony Optimization, Hungarian Method, and Deferred Acceptance Algorithm were used to model gaming scenarios such as 1 vs 1, and Team vs Team.
- The most optimal solution aimed to achieve the best matching of the players according to difficulty level, playing style, and geographical preference.

Leadership/Teamwork Experience

GreenChoice **January 2019 − April 2021**

- Directly responsible for hiring and managing the overseas tech development team. Managerial activities included conducting daily standups, tracking work using agile methodologies, and converting business needs into easy-to-understand technical requirements.
- Helped raise $600,000 in total funding via investor outreach.
- Drafted and led training programs, defined project deliverables, and provided mentorship for a total of 4 intern batches.

Startup Accelerators and Incubators

- **Accelerators:** Katapult Accelerator (Norway), MassChallenge (Providence, Rhode Island)
- **Incubators:** Greentown Labs (Somerville, Massachusetts)

Patents and Patent Applications

- US Patent Application 62989516, "Value based grocery application" Mar 13, 2021