Shreya Agarwal

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SUMMARY

- 4+ years of experience in software engineering, data science, performance improvement, and simulation
- Multidisciplinary background in computer science and industrial engineering, including knowledge of data science and machine learning
- Interested in artificial intelligence-based performance improvement

EDUCATION

Binghamton University, State University of New York, Thomas J. Watson College of Engineering and Applied Science

Master of Science in Industrial and Systems Engineering *May. 2025*

Cumulative GPA: 3.9/4.0

Relevant Coursework: Applied Probability and Statistics, Operations Research, Neural Networks, Applied Multivariate Data Analysis, Advanced Topics in Health Systems, Modeling and Simulation, Fundamentals of Health Systems, Enterprise Systems Engineering

Lovely Professional University, Punjab, India

Bachelor of Technology in Computer Science *May 2021*

Cumulative GPA: 3.3/4.0

Relevant Coursework: Data Structures and Algorithms, Design and Analysis of Algorithms, Computer Programming, Object Oriented Programming, Machine Learning, Web Development, Cloud Computing, Deep Learning, Database Management, Big Data

TECHNICAL SKILLS

Languages: Python, Java, JavaScript, HTML, CSS, React Js, SQL, Spring Boot, MySQL, Express
Libraries/Frameworks: Pandas, Scikit-learn, NumPy, Keras, TensorFlow, PyTorch, Matplotlib, Bootstrap, Servlets, Agile
Tools: Minitab, Tableau, Excel, Simio, Visual Studio Code, GitHub, Jira, Git, Oracle, AWS, Azure, Demo 3D, Flexsim
Machine Learning: Regression, Classification, Deep Neural Networks, Generative AI, Self Organizing Maps
Data Analytics: Statistical Validation, Data Visualization, Data Cleaning, DOE, ANOVA
Certifications: Lean Six Sigma Green Belt, Microsoft Azure Fundamentals, Introduction to Data Science, Artificial intelligence with machine learning and deep learning

Soft Skills: Problem Solving, Analytical Thinking, Team Collaboration, Communication, Time Management, Leadership, Project Management

PROFESSIONAL EXPERIENCE

Endicott Police Department, *Full Stack Developer* **|** Binghamton, NY *Sep. 2024 – Present*

- Developing a MERN-based Police Investigation Management System (PIMS) that automates case management, visualizes lead hierarchies, and generates comprehensive reports
- Developing an interactive dashboard consolidating real-time analytics and key performance metrics, enabling rapid case monitoring and data-driven decision-making
- Designed user-centric system prototype using Figma, resulting in improved interface usability
- Implemented robust security protocols to ensure data integrity and enhance system resilience against potential threats
- Mentored an undergraduate senior design team, contributing to UI/UX enhancements and coordinating comprehensive software testing

Office of the President, *Data Engineer* **|** Binghamton, NY *Mar. 2024 – Aug. 2024*

- Analyzed seven years of historical data comprising over 116,000 records and 59 features to enhance classroom assignment strategies, maximize utilization rates, and improve enrollment efficiencies across various courses
- Developed an optimized algorithm for classroom scheduling, leveraging historical trends and predictive modeling to improve space allocation
- Utilized Python and Excel to perform in-depth analysis of classroom utilization trends and enrollment patterns spanning multiple semesters

iA Pharmacy Automation Company, *Simulation Engineer* **|** Binghamton, NY *Sep. 2023 – Feb 2024*

- Developed simulation models to optimize Central Fill Pharmacy (CFP) operations, streamlining the process for multiple high-capacity systems filling up to 25,000 prescriptions per shift
- Conducted rigorous analysis of systems to identify performance enhancements and bottlenecks, utilizing various key performance indicators such as throughput, utilization, cycle time, fill time window, collation delay etc
- Visualized performance using advanced business intelligence tools such as Tableau for effective communication of results

Paytm, *QA Engineer* **|** Noida, India *Jun. 2022 – Jul. 2023*

- Performed manual and automated testing of REST APIs for mobile payment services used by over 7M+ people across India
- Utilized tools like Jenkins, Argo CD for automation and regression testing, streamline continuous integration and deployment, and ensure efficient and reliable software delivery
- Leveraged Postman and BloomRPC to effectively test and interact with REST APIs
- Utilized DBeaver and DynamoDB for efficient database testing and management
- Participated in Agile development cycles, including daily stand-ups, sprint planning, design and execute test plans, cases and scripts to validate the functionality of the payment services
- Proactively identified areas for test automation, successfully implementing automated testing frameworks to expedite the testing process and reduce manual effort

Broadridge Financial Solution, *Technical Intern* **|** Hyderabad, India *Oct. 2021 – Apr. 2022*

- Conducted user acceptance testing, integration testing, and troubleshooting for Broadridge's flagship products
- Resolved level 1 support issues and actively monitored the status of the products
- Collaborated with cross-functional teams to ensure the delivery of high-quality products, identifying and resolving defects, and enhancing overall user experience

RESEARCH EXPERIENCE

Generative AI Based Liver Tumor Synthesis| Generative Adversarial Network (GAN) *Nov. 2024 – Present*

- Utilized GAN to create realistic synthetic liver tumors with an SSIM 0.8 utilizing a aggregated output of combination of two different types of gans dcgan and wgan
- Developed neural network-driven clustering models, using Self-Organizing Maps for clustering and K-Means for visualization to enable data-driven interventions

Predicting School Abseentism in Autistic Students | Self-Organizing Maps (SOM) *Sep. 2024 – Jan 2025*

- Analyzed absenteeism in autistic students, performing statistical analysis, feature engineering, and data augmentation to identify key behavioral and routine-based predictors and predict school absenteeism
- Developed neural network-driven clustering models, using Self-Organizing Maps for clustering and K-Means for visualization to enable data-driven interventions

Military Survivors Grief Journey Prediction| NLP, LLM *Sep. 2024 – Nov 2024*

- Developed and fine-tuned a SetFit Transformer model, evaluated with Random Forest, achieving 91% accuracy in grief journey stage prediction for military survivors
- Preprocessed multilingual text with translation, lemmatization, stopword removal, and spelling correction for improved model performance

Predicting Post Stroke Activities of Daily Living| ML, PCA, Statistical Modeling *May. 2024 – July 2024*

- Developed ML models for stroke rehabilitation prediction, achieving 99% accuracy
- Applied statistical modeling and dimensionality reduction to identify key predictors for improving rehabilitation outcomes

IISE- Data Analytics and Information Systems Case Study Competition | Montreal, Canada *Feb. 2024 – Mar 2024*

Liver Tumor Segmentation

- Devised an innovative method for precise liver tumor segmentation from CT scans, merging a modified U-Net architecture with Sobel edge detection preprocessing for enhanced accuracy
- Implemented and optimized the model, focusing on top n slices selected based on a predetermined threshold value, significantly enhancing segmentation accuracy
- Evaluated the model's performance with quantitative metrics accuracy and loss achieving a accuracy of 97.8%, demonstrating a substantial improvement over traditional segmentation technique

MENTORING EXPERIENCE

Undergraduate Student

- **Elizabeth Lagani, Saylay Paw, Jack Padolesi, Conner Smith, Liam Sweeney**, in Industrial and Systems Engineering, 2024
  - Capstone Project: Software design and testing
- TA for Java
- Tableau Lecture in Waseda University

ACHIEVEMENTS AND AWARDS

- Recognized as a **Finalist** in the *Institute of Industrial and Systems Engineering Data Analytics and Information Systems Division Data Analytics Competition* *Apr. 2024*