**Shreya Agarwal**

Binghamton, NY | (607) 296-8422 | sagarwal4@binghamton.edu | [https://www.linkedin.com/in/shreya-agarwal25/](http://www.linkedin.com/in/rahul-bu/) | https://github.com/shreya-25

**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 (ISE)*   *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, MongoDb, Express

**Libraries/Frameworks:** Pandas, Scikit-learn, NumPy, Keras, TensorFlow, PyTorch, Matplotlib, Bootstrap, Servlets, Agile

**Tools:** Tableau, GitHub, Jira, AWS, Azure, Demo 3D, Flexsim

**Machine Learning:** Regression, Classification, Clustering, Deep Learning, Generative AI, Natural Language Processing (NLP)

**Data Analytics:** Statistical Validation, Data Visualization, Dimensionality Reduction, Data Augumentation

**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

**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

**Liver Tumor Segmentation Case Study Competition |** Montreal, Canada *Feb. 2024 – Mar 2024*

* 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

**MENTORSHIP/ LEADERSHIP                                                                                                                 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* Mentored an undergraduate team in a capstone project focused on software design and testing using agile methods
* Served as a Java TA, supporting students with MS4ME simulation coding to build core programming and debugging skills
* Guest lectured at Waseda University, teaching data visualization techniques with Tableau to help create clear and actionable charts

**CERTIFICATIONS**

* Lean Six Sigma Green Belt, Binghamton University *May. 2024*
* Microsoft Azure Fundamentals, Microsoft *Oct. 2024*
* Healthcare Data Mining and Analytics, Binghamton University *Jun. 2024*
* Introduction to Data Science, Analytics Vidhya *Jul. 2020*
* Artificial intelligence with machine learning and deep learning, IIT Kanpur *Jul. 2019*

**AWARDS AND HONORS**

* Finalist in the Institute of Industrial and Systems Engineering Data Analytics and Information Systems

Division Data Analytics (IISE DAIS) Competition  *May.2024*

* Recognized at Paytm for proactively implementing test automation frameworks that sped up testing and reduced manual effort *Dec. 2022*