

Curriculum Vitae

Sheeraja Rajakrishnan

PhD Candidate @ Rochester Institute of Technology

✉ srajakri@gmail.com

🌐 [sheeraja-rajakrishnan](https://sheeraja-rajakrishnan.github.io/)

🌐 <https://sheeraja.github.io/>

Research Statement

My research focuses on uncertainty-aware reinforcement learning (RL). The predictions made by machine learning models are often unreliable and tend to be overconfident. Machine learning models usually process unseen or out-of-distribution data with high confidence. In critical applications such as medical diagnoses, autonomous driving, and recommendation systems, unreliable predictions can have severe repercussions, including death, incorrect medical diagnoses, or inadequate treatment for a medical condition. If the machine learning model provided an uncertainty estimate, it would make it easier for a human to intervene and take the appropriate action to avoid these ramifications. Uncertainty estimation can guide an RL agent in learning more efficiently and much faster. My research aims to design an uncertainty-aware RL world model that is trustworthy and can achieve better performance compared to existing state-of-the-art RL world models.

Research Experience

- 2022 – Present ◇ Uncertainty Estimation, Reinforcement Learning
 - Researching on uncertainty-aware reinforcement learning world models (**PyTorch, Git**)
 - Passed the Research Potential Assessment in May 2023
 - Successfully defended dissertation proposal in October 2025
- 2017 – 2019 ◇ Robustness of centrality measures to missing or incorrect graph data
 - Analyzed a social network using K-core decomposition, in **Python**, to segregate nodes into different clusters and to assess the impact of the removal of one node on other nodes
- 2018 ◇ Gait Analysis
 - Gait data - accelerometer and gyroscope readings, video recording of knees' and calves' movement - was collected and analyzed to identify the correlation between features that can be used to identify a person (**Python, Jupyter Notebook**)
- 2013 – 2014 ◇ Image Classification using Conditional Random Fields
 - Proposed and developed an automated Conditional Random Field framework to segment and classify the coronary arteries from 2D axial image slices of the heart based on the extracted local and global features, to detect stenosis (**C++, OpenCV**)

Invited Talks & Guest Lectures

- Oct 2023, Sep 2025 ◇ **An Introduction to Machine Learning** – Guest lecture for SWEN101: Software Engineering Freshman Seminar, Golisano College of Computing & Information Sciences, Rochester Institute of Technology
- Feb 2025 ◇ **Uncertainty in Machine Learning** – Guest lecture for CSCI736: Neural Networks & Machine Learning, Golisano College of Computing & Information Sciences, Rochester Institute of Technology
- Jul 2024 ◇ **An Introduction to Machine Learning** – Invited talk at GenCyber Summer Camp for 8th-12th grade students, Rochester Institute of Technology

Other Activities

- 2023, 2024, 2025, 2026 ◇ **ASA DataFest** – Mentor/Judge/Steering Committee, Rochester Institute of Technology
- 2024, 2025 ◇ **Rochester Pre-College Data Science Competition** – Mentor/Judge, Rochester Institute of Technology

Employment History

- 2020 – 2022 ◇ **Data Analyst/Data Scientist** Kaiser Permanente (DiSys)
- Analyzed video visits data and developed multiple **Tableau** reports to communicate the insights with the stakeholders
 - Developed an interactive **Tableau** dashboard and custom **Google Analytics** reports and dashboards for analyzing COVID-19 web traffic
 - Worked on a PoC algorithm for face recognition, using **Python** and the sklearn package
 - Created a dynamic **Tableau** dashboard to track all the published reports on the **Tableau server**, using the **PostgreSQL** Tableau Server Repository
 - Created a Tableau dashboard to forecast pageviews, using SARIMAX and the **TabPy server**
 - Involved in upgrading the **Tableau server** and maintaining user accesses
 - Conducted data science sessions on Logistic Regression, K-Means and K-Modes Clustering, Dimensionality Reduction, Decision Trees, and TabPy
 - Utilized NLP models to categorize patient emails (using **Python** and spaCy)
- 2019 – 2020 ◇ **Technical Business Analyst** Kaiser Permanente (DiSys)
- Automated a portion of the testing process to reduce the testing time from 20 minutes to 30 seconds, using **Python**
 - Worked on QA and database regression testing
- 2018 – 2019 ◇ **Data Analyst** Syracuse University
- Analyzed faculty research expenditures, to assess the overall spending incurred by the department, and created reports using **Tableau Desktop**
 - Automated all the data entry and analysis processes, to populate the data required for the analysis and reporting, using **Python**
 - Worked on converting a manual form to an online form using **JavaScript, PHP, and MySQL**
- 2015 – 2017 ◇ **Business Analyst** Tata Consultancy Services (TCS)
- Worked as a Lead for a few projects, in the Visual Analytics team, to report the performance of the business, using **Tableau**
 - Performed K-means clustering for customer segmentation, correlation analysis for customer spending patterns, and trend analysis on customer spending data using **Python, R, Hive, and Impala**
 - Created a few custom views, such as a chord chart, an arc chart, and a hexagonal map, in **Tableau**
 - Developed an algorithm, using **Impala**, to validate transactions that were flagged as fraudulent transactions
 - Worked, as a Lead and developer, on the full stack development of an agile project to create a web page and monitor the traffic — Created a web page, back-end databases, and reports using **Impala** and **Tableau**
 - Provided training on **R, Tableau, and cloud platforms** to colleagues
- 2014 – 2015 ◇ **Trainee Decision Scientist** Mu Sigma Business Solutions Pvt. Ltd.
- Worked for the in-house Products Team to build a Naive Bayes Classifier Package, using **R (RStudio)**, to perform classification of textual and non-textual data
 - Worked with Business Intelligence team, of a major multinational mass media and information client, to perform data analyses and generate analytic reports using **SAP Business Objects** and **Tableau**

Education

- Aug 2022 – May 2027 (Expected) ◇ **Ph.D., Rochester Institute of Technology** Computing and Information Sciences
- Aug 2017 – May 2019 ◇ **M.S., Syracuse University** Computer Science
- Aug 2010 – May 2014 ◇ **B.E., SSN College of Engineering** Computer Science