

Rupam Acharyya

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EDUCATION

University of Rochester

PhD in Computer Science

Rochester, NY

expected May 2020

Chennai Mathematical Institute

MSc in Computer Science

Chennai, India

August 2014

BSc in Mathematics & Computer Science

August 2012

SKILLS & COURSEWORK

- **Programming Language:** Proficient in *Python*, Familiar with *C, Java, Shell, HTML, Mathematica, MATLAB*.
- **Technical Skills:** *PyTorch, PyMC3, Statistical Analysis, Natural Language Processing, BERT fine tuning, Deep Learning Models, Mathematical Optimization, Causal Model, Bayesian Inference, MCMC methods, Variational Inference, Self-exciting Point Process, Autoregressive Models, Hawkes Process*.
- **Relevant Coursework:** *Machine Learning, Data Mining, Statistical Language Processing, Big Data Analysis, Probability and Statistics, Linear Algebra, Calculus, Real and Complex Analysis, Algorithms Design, Advanced Data Structures, Randomized and Approximation Algorithms, Computational Complexity*.

SELECTED PROJECTS

Fairness In Public Speaking:

Summer 2019 - Present

Trained a corpus of 2383 *TED talk dataset* to build a fair neural network based rating predictor for public speaking using *counterfactual fairness*; Used *PyTorch* and *PyMC3* for designing the system. This fair rating predictor system is first of its kind in the public speaking domain.

Neural Network Pruning:

Fall 2019 - Present

Led a group to design a novel diversity based edge pruning method for *feedforward neural networks* using *Determinantal Point Process* which outperformed previously known diversity based pruning method and provided theoretical justifications of its performance by analyzing the *generalization error bounds*.

Understanding Mental Health From Web Search Data:

Spring 2019 - Present

From de-identified web search data of ~100 individuals extracted spatio-temporal patterns of mental health condition, such as, *low self esteem, suicide ideation* using *Bayesian Inference* in *graphical models* and *time series analysis* which can be used by clinicians to detect mental health issues and treat them accordingly.

Contextual Humor Detection:

Fall 2019 - Present

Working on a modeling *Incongruity theory of humor* using annotated *TED talk dataset* by fine tuning *BERT*.

Crime Data Modeling:

Summer 2018

For predicting *criminal activity of Rochester* built a spatial model using *geographically weighted regression* from the demographic and location data of Rochester. Also, developed a package to detect crime based on temporal patterns using the *Hawkes process* and *Autoregressive model*.

SELECTED PUBLICATIONS/MANUSCRIPTS

- **Rupam Acharyya**, S. Das, A. Chatteraj, I. Tanveer. *FairyTED: A Fair Rating Predictor for TED Talk Data* - **AAAI 2020 (Selected for talk in AI for Social Impact Track)**.
- **Rupam Acharyya**, S. Das, K. Hasan, A. Chatteraj, I. Tanveer. *Fairness in Rating Prediction by Awareness of Verbal and Gesture Quality of Public Speeches* (Under Review).
- **Rupam Acharyya**, B. Zhang, S. Das and D. Stefankovic. *Understanding Diversity based Edge and Node Pruning of Neural Networks* (Under Review).
- **Rupam Acharyya***, A.Z. Rony*, B. Zhang, H. Kautz, V. Silenzio and E. Hoque. *Aggregating Search Logs and Self-esteem for Identifying Individuals* (Under Review).
- A.Z. Rony, **Rupam Acharyya**, H. Kautz and V. Silenzio. *Detecting Low Self-Esteem in youths from Web Search Data* - **WWW 2019**.
- **Rupam Acharyya***, A. Chatteraj*, S. Shivakumar, R. Ali and I. Tanveer. *To be or not to be? A Spatial Predictive Crime Model for Rochester* (Won **3rd position** in the data competition of **UP-STAT 2018**).
- **Rupam Acharyya** and D. Stefankovic. *Glauber Dynamics for Ising Model on Convergent Dense Graph Sequences* - **RANDOM 2017**.

LEADERSHIP EXPERIENCE

Graduate Teaching Assistant

Fall 2014, 2015 & Spring 2015, 2020

Arranged workshops, tutorials, daily office hours to help students understand the course materials more. Managed 7 undergrad teaching assistants by sending daily reminders about their jobs. Helped the instructor with exam proctoring, tutorial assignment, grading and teaching lectures in absence of the instructor.

Cultural Secretary of BAGR (Bengali Association of Greater Rochester)

Summer 2018 - Spring 2019

Planned and coordinated cultural program for non profit cultural organization of the Bengali Community of Greater Rochester. Developed program content and helped with fundraising. Managed to involve participants with diverse backgrounds. Recognized for creating some of the most successful events held in the community.

PhD Admission Committee

Spring 2016, 2017

Helped the PhD admission committee of the computer science department of University of Rochester to select PhD candidates by reviewing their profile and then interviewing them.