

## Education

2022–Present **New York University** *New York, USA*

Ph.D. in Computer Science

Courses: Deep learning, Computer vision, Causal inference, Statistical learning theory

2021–2022 **University of Texas Rio Grande Valley (UTRGV)** *Texas, USA*

M.S. in Applied Statistics and Data Science, GPA: 4.00/4.00

Courses: Neural network, Statistical learning, Data mining, Linear algebra, Probability and statistics

## Research Interests

**AI Ethics** Detection and mitigation of misinformation and bias in [foundational models](#); developing ethical frameworks for deepfake recognition and toxicity reduction.

**AI Alignment** Developing scalable oversight mechanisms for ensuring AI systems adhere to Helpful, Honest, and Harmless (HHH) principles.

## Research Experience

2022–Present **Graduate Research Assistant** *New York University NY, US*

Mentor: [Dr. Rumi Chunara](#)

- Analyzing fairness in clinical BERT models trained on NYU Langone's discharge notes, focusing on privacy and fairness dynamics in downstream supervised tasks: readmission, mortality, length of stay, comorbidity, and insurance denial prediction.
- Investigating debiasing techniques and developing rewriting strategies to systematically reduce bias in clinical notes.
- Contributing to the development of NYU-GPT, a domain-specific language model, integrating both public datasets (MIMIC-IV, SlimPajama, Pubmed Collection, Common Crawl medical section) and proprietary NYU clinical data (discharge, radiology, and pathology notes, along with social and consult conversational data).
- Exploring disparities in post hoc machine learning explanations, considering sample size, concept shift, and group attributes, with fidelity gap metrics; enhancing explanation quality for sensitive groups using multilevel and selective explanation methods.
- Evaluating the robustness of Google Street View images as proxies for health-related outcomes, utilizing mediation analysis and validation with ground truth data.

2021–2022 **Graduate Research Assistant** *University of Texas RGV TX, US.*

Mentor: [Dr. Tamer Oraby](#)

- Modeled the effect of cultural behaviors on COVID-19 policy adherence and economic outcomes using evolutionary game theory to underscore the role of human behavior in public health interventions.
- Leveraged Convolutional Neural Network's fully connected layer to predict human cultural dimensions from COVID-19 time series data, providing insights into behavioral patterns during the pandemic.

## Publications

[arXiv link](#) **Out of Distribution Performance of State of Art Computer Vision Model**

Salman Rahman, Wonkwon Lee

*arXiv preprint arXiv:2301.10750.*

[paper link](#) **Current Scenario of Solar Energy Applications in Bangladesh: Techno-Economic Perspective, Policy Implementation, and Possibility of the Integration of Artificial Intelligence**

Monirul Islam Miskat, Protap Sarker, Hemal Chowdhury, Tamal Chowdhury, **Salman Rahman**, Nazia Hossain, Piyal Chowdhury, Sadiq M. Sait

*Energies*, 16(3), 2023 (Impact Factor: 3.2).

- [paper link](#) **Advanced Thermodynamics Analysis for Sustainable Residential Sector: A Case Study of Turkish Residential Sector**  
 Monirul Islam Miskat\*, **Salman Rahman\***, Quddus Tushar\*, Shishir Barai, Nazia Hossain, Fazleh Rabbi, Nadia Sultana Nisha, Sadiq Sait  
*Environmental Science and Pollution Research*, 30(13), 2023 (Impact Factor: 5.8).
- [paper link](#) **A Simulation Study of Techno-Economics and Resilience of the Solar PV Irrigation System Against Grid outages**  
 Hemal Chowdhury, Tamal Chowdhury, **Salman Rahman**, Hasan Masrur, Tomonobu Senjyu  
*Environmental Science and Pollution Research*, 1-12, 2022 (Impact Factor: 5.8).
- [paper link](#) **Estimation of the Healthcare Waste Generation During COVID-19 Pandemic in Bangladesh**  
 Tamal Chowdhury, Hemal Chowdhury, **Salman Rahman**, Nazia Hossain, Ashfaq Ahmed, Sadiq M. Sait  
*Science of the Total Environment*, 152295, 2021 (Impact Factor: 9.8).
- [paper link](#) **More Crops Whilst Saving Drops Using an Optimization Model – A Case from Bangladesh**  
 Md Reaz Akter Mullick, **Salman Rahman**, Md Panjarul Haque  
*Irrigation and Drainage*, 1-19, 2021 (Impact Factor: 1.9).
- [paper link](#) **Design of a Stand-alone Energy Hybrid System for a Makeshift Health Care Center - A Case Study**  
 Tamal Chowdhury, Hemal Chowdhury, Samiul Hasan, **Salman Rahman**, M.M.K.Bhuiya, Piyal Chowdhury  
*Journal of Building Engineering*, 40, 102346, 2021 (Impact Factor: 7.144).
- [paper link](#) **An Overview of the Hydropower Production Potential in Bangladesh to Meet the Energy Requirements**  
 Monirul Islam Miskat, Ashfaq Ahmed, **Salman Rahman**, Hemal Chowdhury, Tamal Chowdhury, Piyal Chowdhury, Sadiq M. Sait, Young-Kwon Park  
*Environmental Engineering Research*, 26(6), 200514, 2020 (Impact Factor: 3.5).
- [paper link](#) **Improving Spatial Agreement in Machine Learning-based Landslide Susceptibility Mapping**  
 Mohammed Sarfaraz Gani Adnan, **Salman Rahman**, Nahian Ahmed, Bayes Ahmed, Md. Fazleh Rabbi, Rashedur M. Rahman  
*Remote Sensing*, 12(20), 3347, 2020 (Impact Factor: 5.0).

## Awards and Recognitions

- 2022-2023 **School of Engineering Fellowship** *New York University*  
 2022 **Innovation Corps Participant** *National Science Foundation*  
 2022 **Rafael Munguia Business Plan Competition** *UTRGV*  
 2021-2022 **Presidential Graduate Research Assistantship** *UTRGV*  
 2021 **LaunchPad Ideas Competition** *Blackstone*  
 2021 **Big Idea Competition** *UTRGV*

## Skills

- Languages Python, C, C++, Matlab, Bash  
 Frameworks PyTorch, Hugging Face Transformers, TensorFlow, Keras  
 Version Control Git  
 Statistics R  
 Database MySQL

## Teaching

- Spring 2022 **STAT 3337: Probability and Statistics**  
**Graduate Teaching Assistant**  
 o Instructor: [Prof. George Yanev](#) and [Prof. Cuiyu He](#)

UTRGV

Spring 2022 **STAT 3301: Applied Statistics**  
**Graduate Teaching Assistant**

*UTRGV*

◦ Instructor: [Prof. George Yanev](#)

Spring 2022 **MATH 1342: Elementary Statistical Methods**  
**Instructor**

*UTRGV*

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## References

Available upon request.