

Ruby Shrestha

Contact Information

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Research Interests

Deep learning, Generative models, Counterfactual data augmentation, Fairness & distributional robustness of deep learning models

Education

PhD, Computing and Information Sciences **2022-Present**
Rochester Institute of Technology, Rochester, NY, USA **GPA (3.72/4.00)**
Advisor: Dr. Linwei Wang
Relevant Courses: Quantitative Foundations, Deep Learning, Statistical Machine Learning, Non-convex Optimization, Data Science & Analytics, Visual Analytics

B.Sc., Computer Science and Information Technology **2013-2017**
Tribhuvan University, Nepal **(84.14%)**

Honors & Awards

Dr. Russell and Melissa Bessette Award for Doctoral Student Excellence **2023**
Rochester Institute of Technology, Rochester, NY, USA

National Female Education Award **2019**
Native Name: Nepal Chhatra Bidhya Padak
Ministry of Education, Science and Technology, Government of Nepal

Academic Excellence Award **2018**
Deerwalk Institute of Technology, Tribhuvan University, Nepal

Winner: International Girls in ICT Day Hackathon **2016**
Nepal Telecommunications Authority and Women Leaders in Technology

Outstanding Cambridge Learners Award- Top in Country **2013**
Cambridge Assessment International Education, United Kingdom

Technical Skills

Deep Learning Framework: PyTorch
Programming: Python
Data Management and Analytics: MySQL, Elasticsearch
Visualization: Tableau, Looker Studio
Platforms: Windows, Linux, Mac OS

Research Experience

Graduate Research Assistant **2022-Present**
Computational Biomedicine Lab (CBL)
Rochester Institute of Technology, NY, USA
Research Area: Fairness and distributional robustness of deep learning models.
Currently researching on making generative models robust towards (spurious) feature correlations in data.

	Independent Research Study as Alumna 05/2018-08/2018 Deerwalk Institute of Technology, Tribhuvan University, Nepal Research Focus: Empirically assess mixed-model approach of path finding (irregularities-tolerant dead-end filling with A* search) to understand its feasibility and effectiveness on convoluted maze paths.
	Research Assistant 03/2017-05/2017 Deerwalk Institute of Technology, Tribhuvan University, Nepal Research Focus: Understand the perspective of students on the usage of blended learning pedagogy in Deerwalk Institute of Technology.
Publications	DATS: Difficulty-Aware Task Sampler for Meta-Learning Physics-Informed Neural Networks M. Toloubidokhti, Y. Ye, R. Missel, X. Jiang, N. Kumar, R. Shrestha , L. Wang <i>The Twelfth International Conference on Learning Representations, 2024</i> Conference Article Distributionally Robust Optimization and Invariant Representation Learning for Addressing Subgroup Underrepresentation: Mechanisms and Limitations N. Kumar, R. Shrestha , Z. Li, L. Wang <i>Fairness of AI in Medical Imaging (FAIMI @ MICCAI), 2023</i> Workshop Article Maze Solving with Anomaly Tolerant Dead End Filling and A*: Implementation and Analysis R. Shrestha <i>Deerwalk Journal of Computer Science and Information Technology, 2019</i> Journal Article
Manuscripts Under Review	Anonymous manuscript, ICLR 2026 (double-blind) Overview: Robust generative modeling under training dataset correlation Re-Examining the Impact of Observed Feature Correlations on Minority Image Generation R. Shrestha , N. Kumar, A. Gopi, B. Lekhak, L. Wang <i>IEEE Transactions on Pattern Analysis and Machine Intelligence, 2025</i>
Conference Presentations	Maze Solving with Anomaly Tolerant Dead End Filling and A*: Implementation and Analysis <i>Fifth International Conference on Information Technology for Development, 2018</i> Blended Learning in DWIT College: From Learners Perspective <i>Fourth International Conference on Information Technology for Development, 2017</i>
Teaching Experience	Workshop Instructor 01/2019-03/2019 Deerwalk Institute of Technology, Tribhuvan University, Nepal Course: Fundamental concepts of Data Management and Analysis with Elasticsearch.

	Guest Trainer Local Development Training Academy (LDTA), Nepal A three-day intensive and hands-on training program on Cloud Services, Content Management System, and Project Management Tools.	07/2018
	Guest Trainer Local Development Training Academy (LDTA), Nepal A three-hour interactive training session on Mobile Applications' Usage, Security and Earning.	07/2016
Industry Experience	Software Consultant Saugal Trading Company Pvt. Ltd., Nepal	04/2021-07/2022
	Senior Software Engineer, Development Manager Software Engineer, Team Lead Software Engineer Software Engineering Intern Deerwalk Services Pvt. Ltd. (Now, Cedar Gate Technologies) Product: Deerwalk Plan Analytics Department: Research and Development Focus: Worked on and led projects to optimize Elasticsearch queries and extract healthcare data from Elasticsearch cluster for creating descriptive, prescriptive, and trend-based, industry-standard healthcare reports and data visualizations.	01/2021-03/2021 04/2019-01/2021 05/2018-03/2019 09/2015-04/2018