

Ruby Shrestha

Contact Information

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Research Interests

Deep learning, Generative models, Fairness & distributional robustness of deep learning models

Education

PhD, Computing and Information Sciences **2022-Present**
Rochester Institute of Technology, Rochester, NY, USA **GPA (4.00/4.00)**
Advisor: Dr. Linwei Wang
Relevant Courses: Quantitative Foundations, Deep Learning, Statistical Machine Learning, Data Science & 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, Java
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 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
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 07/2018 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.
	Guest Trainer 07/2016 Local Development Training Academy (LDTA), Nepal A three-hour interactive training session on Mobile Applications' Usage, Security and Earning.

**Industry
Experience**

Software Consultant

Saugal Trading Company Pvt. Ltd., Nepal

04/2021-07/2022

Senior Software Engineer, Development Manager

01/2021-03/2021

Software Engineer, Team Lead

04/2019-01/2021

Software Engineer

05/2018-03/2019

Software Engineering Intern

09/2015-04/2018

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.