

# Ruby Shrestha

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| <b>Contact Information</b> | LinkedIn: <a href="https://www.linkedin.com/in/ruby--shrestha">www.linkedin.com/in/ruby--shrestha</a><br>Rochester, NY 14623 USA<br><a href="mailto:rs9466@rit.edu">rs9466@rit.edu</a>   |  |
| <b>Research Interests</b>  | Deep learning, Generative models, Counterfactual data augmentation, Fairness & distributional robustness of deep learning models   |  |
| <b>Education</b>           | <b>PhD, Computing and Information Sciences</b><br>Rochester Institute of Technology, Rochester, NY, USA<br>Advisor: Dr. Linwei Wang<br>Relevant Courses: Quantitative Foundations, Deep Learning, Statistical Machine Learning, Non-convex Optimization, Data Science & Analytics, Visual Analytics                    | <b>2022-Present</b><br>GPA (3.72/4.00) |
|                            | <b>B.Sc., Computer Science and Information Technology</b><br>Tribhuvan University, Nepal   | <b>2013-2017</b><br>(84.14%)           |
| <b>Honors &amp; Awards</b> | <b>Dr. Russell and Melissa Bessette Award for Doctoral Student Excellence</b><br>Rochester Institute of Technology, Rochester, NY, USA   | <b>2023</b>                            |
|                            | <b>National Female Education Award</b><br><i>Native Name: Nepal Chhatra Bidhya Padak</i><br>Ministry of Education, Science and Technology, Government of Nepal   | <b>2019</b>                            |
|                            | <b>Academic Excellence Award</b><br>Deerwalk Institute of Technology, Tribhuvan University, Nepal  | <b>2018</b>                            |
|                            | <b>Winner: International Girls in ICT Day Hackathon</b><br>Nepal Telecommunications Authority and Women Leaders in Technology  | <b>2016</b>                            |
|                            | <b>Outstanding Cambridge Learners Award- Top in Country</b><br>Cambridge Assessment International Education, United Kingdom  | <b>2013</b>                            |
| <b>Technical Skills</b>    | Deep Learning Framework: PyTorch<br>Programming: Python<br>Data Management and Analytics: MySQL, Elasticsearch<br>Visualization: Tableau, Looker Studio<br>Platforms: Windows, Linux, Mac OS   |  |
| <b>Research Experience</b> | <b>Graduate Research Assistant</b><br>Computational Biomedicine Lab (CBL)<br>Rochester Institute of Technology, NY, USA<br>Research Area: Fairness and distributional robustness of deep learning models.<br>Currently researching on making generative models robust towards (spurious) feature correlations in data. | <b>2022-Present</b>                    |

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

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| <b>Guest Trainer</b>  | <b>07/2018</b>         |
| 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.   |                        |
| <b>Guest Trainer</b>  | <b>07/2016</b>         |
| Local Development Training Academy (LDTA), Nepal  |                        |
| A three-hour interactive training session on Mobile Applications' Usage, Security and Earning.  |                        |
| <b>Industry Experience</b>  | <b>04/2021-07/2022</b> |
| <b>Software Consultant</b>  |                        |
| Saugal Trading Company Pvt. Ltd., Nepal   |                        |
| <b>Senior Software Engineer, Development Manager</b>  | <b>01/2021-03/2021</b> |
| <b>Software Engineer, Team Lead</b>   | <b>04/2019-01/2021</b> |
| <b>Software Engineer</b>  | <b>05/2018-03/2019</b> |
| <b>Software Engineering Intern</b>  | <b>09/2015-04/2018</b> |
| 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. |                        |