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SHUVENDU ROY

PhD Student

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Google Scholar

I'm a Ph.D. Student at Queen's University, Kingston, ON, Canada. My research focuses on artificial intelligence and Unsupervised Learning in Computer Vision. A summary of my profile is as follows: Published in top-tier conferences and journals, Skilled in python and different machine learning libraries (Pytorch, Tensorflow, etc); Experienced in deep learning method and model designing, training, and deployment.

Research & Professional Experience

Google Research — **May 2023 — Oct 2023**
Student Researcher — *Toronto, ON, Canada*

- Research area: Self-supervised Learning, IMU.
- Research focused on the quality-quantity tread off in unlabelled data for self-supervised learning. Consequently, I developed a strategic sampling technique for unlabelled data that reduces training costs and improves performance.
- Worked on IMU data for activity recognition.

Queen's University — **Jan 2022 — Present**
Teaching Assistant — *Kinston, ON, Canada*

- Artificial Intelligence, Winter 2022, 2023.
- Introduction to Programming, Fall 2022

Robi Axiata Limited — **Nov 2019 –– Jul 2021**
Applied ML Researcher — *Dhaka, Bangladesh*

- Developed a recommender system of telecom packages based on the user purchase and consumption profile.
- Developed predictive models for custom churn prediction and usage drop prediction.

REVE System Ltd. — **Mar 2019 — Oct 2019**
Jr. Software Engineer — *Dhaka, Bangladesh*

- Research focused on the development of Bengali spell and grammar checkers and corrector models.
- Worked on domain-specific ChatBot.

Education

Doctor of Philosophy (Ph.D.) in Artificial Intelligence — **Jan 2022 — Present**
Queen's University — *Kinston, ON, Canada*

- Expected Graduation: Fall 2025
- Research Area: Unsupervised visual representation learning and it's downstream adaptation.
- Thesis: Unsupervised Visual Representation Learning: Training, Downstream Adaptation and Continual Tuning

Master of Applied Science (MASc) in Electrical and Computer Engineering — **Sep 2020 — Dec 2021**
Queen's University — *Kinston, ON, Canada*

- Thesis: Unsupervised visual representation learning.
- CGPA: 4.13/4.30
- Promoted to Ph.D.

Bachelor of Science (BSc) in Computer Science and Engineering — **Apr 2015 — Jan 2019**
Khulna University of Engineering & Technology — *Khulna, Bangladesh*

- Thesis: Facial emotion recognition using transfer learning in the deep CNN.
- CGPA: 3.26/4.00

Skills

Libraries and Technologies	PyTorch, Tensorflow, Keras, Scikit-learn, Matlab, Git, UNIX, Android, IOS, ASP.NET, Oracle, MySQL
Programming Language	Python, C, C++, Java, $C\#$, R, JavaScript
Communication	English,Bengali
Problem Solving	500+ solved problem in online judges and 10+ competitions in Kaggle.

Awards and Scholarships

Graduate Student Conference Travel Award, Queens's University, Canada — **July, 2023**
Runners Up in 'System Development Project Competition', at Khulna University of Engineering & Technology — **Feb 2018**
Vocational Scholarship from Khulna University of Engineering & Technology for Academic year 2014/15 and 2017/18 — **2015, 2018**

Publications

1. ***Shuvendu Roy***, Ali Etemad, '**Contrastive Learning of View-Invariant Representations for Facial Expressions Recognition**', ACM Transactions on Multimedia Computing, Communications, and Applications, 2023.
2. ***Shuvendu Roy***, Ali Etemad, '**Active Learning with Contrastive Pre-training for Facial Expression Recognition**', 11th International Conference on Affective Computing and Intelligent Interaction (ACII 2023).
3. ***Shuvendu Roy***, Ali Etemad, '**Consistency-guided Prompt Learning for Vision-Language Models**', arXiv preprint arXiv:2306.01195.
4. ***Shuvendu Roy***, Ali Etemad, '**Scaling Up Semi-supervised Learning with Unconstrained Unlabelled Data**', arXiv preprint arXiv:2306.01222.
5. ***Shuvendu Roy***, Ali Etemad, '**Exploring the Boundaries of Semi-Supervised Facial Expression Recognition: Learning from In-Distribution, Out-of-Distribution, and Unconstrained Data**', arXiv preprint arXiv:2306.01229.
6. ***Shuvendu Roy***, Ali Etemad, '**Temporal Contrastive Learning with Curriculum**', IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2023).
7. ***Shuvendu Roy***, Ali Etemad, '**Impact of Labelled Set Selection and Supervision Policies on Semi-supervised Learning** ', arXiv preprint arXiv:2211.14912.
8. ***Shuvendu Roy***, Ali Etemad, '**Analysis of Semi-Supervised Methods for Facial Expression Recognition**', 10th International Conference on Affective Computing and Intelligent Interaction (ACII 2022)
9. ***Shuvendu Roy***, Ali Etemad, '**View-Invariant Compact Contrastive Learning for Facial Expression Recognition**', AAAI'22 Workshop on Human-Centric Self-Supervised Learning, 2022.
10. ***Shuvendu Roy***, Ali Etemad, ''**Self-supervised Contrastive Learning of Multi-view Facial Expressions**', 23rd ACM International Conference on Multimodal Interaction (ICMI 2021).
11. ***Shuvendu Roy***, Ali Etemad, '**Spatiotemporal Contrastive Learning of Facial Expressions in Videos**', 9th International Conference on Affective Computing and Intelligent Interaction (ACII 2021).
12. M. A. H. Akhand, ***Shuvendu Roy***, N. Siddique and T. Shimamura, ' **Facial Emotion Recognition Using Transfer Learning in the Deep CNN**', Electronics 10 (9), 2021.
13. M. A. H. Akhand, Md. Ijaj Sayim, ***Shuvendu Roy*** and N. Siddique, '**Human Age Prediction from Facial Image using Transfer Learning in Deep Convulutional Neural Network**', in International Joint Conference on Computational Intelligence(IJCCI), pp.217-229, Springer, 2020.
14. ***Shuvendu Roy***, '**Island Loss for Improving the Classification of Facial Attributes with Transfer Learning on Deep Convolutional Neural Network**', International Journal of Image, Graphics and Signal Processing(IJIGSP), Vol.12, No.1, pp. 18-29, 2020.
15. Sneha Paul and ***Shuvendu Roy***, '**Forecasting The Average Temperature Rise In Bangladesh: A Time Series Analysis**', Journal of Engineering Science 11(1), 83-91, 2020.
16. ***Shuvendu Roy*** and Ferdous Bin Ali, '**Unsupervised Context-Sensitive Bengali Spelling Correction with Character N-gram**' in 22nd International Conference on Computer and Information Technology (ICCIT-2019), IEEE, 2019.
17. ***Shuvendu Roy*** and Md. Sakif Rahman, '**Emergency Vehicle Detection on Heavy Traffic Road from CCTV Footage Using Deep Neural Network**', 2nd International Conference on Electrical, Computer and Communication Engineering(ECCE), IEEE, 2019.
18. ***Shuvendu Roy***, '**Generating Anime from Real Human Image with Adversarial Training**', International Conference on Advances in Science, Engineering and Robotics Technology (ICASERT-2019), IEEE, 2019.
19. ***Shuvendu Roy***, '**Improved Bangla Language Modeling with Convolution**', International Conference on Advances in Science, Engineering and Robotics Technology (ICASERT-2019), IEEE, 2019.
20. ***Shuvendu Roy***, **'Denoising Sequence-to-Sequence modeling for removing spelling mistakes'**, International Conference on Advances in Science, Engineering and Robotics Technology (ICASERT-2019), IEEE, 2019.
21. ***Shuvendu Roy*** and Sneha Paul, '**Land-Use Detection Using Residual Convolutional Neural Network**', International Conference on Advances in Science, Engineering and Robotics Technology (ICASERT-2019), IEEE, 2019.
22. ***Shuvendu Roy***, Md. Ijaj Sayim and M. A. H. Akhand '**Pathological Voice Classification Using Deep Learning**', International Conference on Advances in Science, Engineering and Robotics Technology (ICASERT-2019), IEEE, 2019.
23. ***Shuvendu Roy***, M. A. H. Akhand and N. Siddique, '**Synthesis of Facial Image using Conditional Generative Adversarial Network**', in 5th International Conference on Computer, Communication, Chemical, Materials and Electronic Engineering, IEEE, 2019.
24. ***Shuvendu Roy***, '**Applying Aging Effect on Facial Image with Multi-domain Generative Adversarial Network**', International Journal of Image, Graphics and Signal Processing(IJIGSP), Vol.11, No.12, pp. 14-22, 2019.
25. ***Shuvendu Roy***, Sk. Imran Hossain, M. A. H. Akhand and N. Siddique, '**Sequence Modeling for Intelligent Typing Assistant with Bangla and English Keyboard**', International Conference on Innovation in Engineering and Technology(ICIET), IEEE, 2018.

Academic Services

Area Chair/ Program Committee Member

- AAAI Conference on Artificial Intelligence (AAAI-23, AAAI-24)
- AAAI Workshop on Representation Learning for Responsible Human-Centric AI (AAAI-23)

Reviewer

- NeurIPS workshop on Workshop on robustness of zero/few-shot learning in foundation models (R0-FoMo-23)
- NeurIPS workshop on Self-Supervised Learning: Theory and Practice (2023)
- International Conference on Computer Vision (ICCV-23)
- Conference on Computer Vision and Pattern Recognition (CVPR-23)
- European Conference on Computer Vision (ECCV-22)
- IEEE Transactions on Affective Computing (TAFFC)
- IEEE Transactions on Artificial Intelligence (TAI)
- IEEE Transactions on Emerging Topics in Computational Intelligence (TETCI)
- Springer Nature Artificial Intelligence Review
- International Journal of Electrical and Computer Engineering (IJECE)
- AAAI'22 Workshop on Human-Centric Self-Supervised Learning
- International Conference on Pattern Recognition (ICPR)
- Imaging Science Journal
- PeerJ Computer Science

Engineering Projects

- **Intelligent Bengali Typing Assistant** - GitHub
  A language model base intelligent typing assistant system for Bengali. It suggests words and sentences while typing.
- **Blood-Bank (Android)** - GitHub
  An android application that helps to find the nearest blood donor.
- **Bangla Programming language (B)** - GitHub
  Interpreted Bengali programming language (B). C-like syntax. The language and the editor are built with python.
- **Self Driving Car** - GitHub
  Small-scale simulated training of a self-driving car.
- **Coin-Collector (Game)** - GitHub
  A game project developed with Unity. Finite time runner game to maximize points with speed busters and obstacles.

References

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