Amran Bhuiyan

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https://scholar.google.com/citations?user=GvSAjYAAAAAJ&hl=en

EDUCATION

Ph.D. in Computational Vision, Recognition and Machine Learning, Istituto Italiano di Tecnologia(IIT)- University of Genova, Genova, Italy   Mar 2014 - April 2017

Dissertation: Person Re-identification: From Closed to Open-World Scenario.

Master of Science (Erasmus) in Computer Engineering and Information Technology, Lucian Blaga University of Sibiu, Romania.   Sep 2009 - Jun 2011 / GPA: 9.75/10.00

Dissertation: Image Processing for Skin Cancer Features Extraction.   Rank: 01/32

Bachelor of Science in Applied Physics, Electronics and Communication Engineering, University of Dhaka, Bangladesh.   Jun 2003 - Jan 2009 / Result: First Class, Rank: 04/58

TEACHING EXPERIENCE

Course Director (Adjunct), York University, Toronto, Canada.   Jan 2023 -
AP/ITEC1010 - Information and Organizations
AP/ITEC 4020 - Internet Client-Server Systems
- Developed course materials, facilitated hands-on sessions and delivered lectures to introduce the subject of Information and Organizations, and Internet Client-Server Systems.

Instructor, York University, Toronto, Canada.   Jun 13,2022 - Jun 20, 2022
SMART-ART Summer Courses - 2022
- Developed course materials, organized hands-on sessions and delivered lectures to provide an introduction to the field of Artificial Intelligence.

Associate Professor   Mar 2021 -May 2022
Assistant Professor   Mar 2012-Dec 2017
Dept. of Computer Science and Telecommunication Engineering,
Noakhali Science and Technology University, Bangladesh.
- Designed course syllabi and delivered lectures on various subjects, including Artificial Intelligence, Advanced Computer Vision, Database Design, Multimedia Communications, Advanced Digital Signal Processing, Biomedical Signal Processing, Microprocessor, Micro-controller, and Interfacing.

RESEARCH INTERESTS

- Computer Vision - Re-identification, Multi-camera Target Tracking, Information and Object Retrieval.
- Machine Learning - Transfer Learning, Metric Learning, and Deep Learning.
- Application - Video Surveillance, Person Search, Sport and data analytics.

TECHNICAL SKILL

- Programming Skill: **Matlab, Python, C, C++ & JavaScript**.
- Deep Learning Tools: **PyTorch and TensorFlow**.
- Data Visulization Tools: t-SNE, Python Libraries (Matplotlib, Seaborn, Plotly) and Tableau.
- Operating System & Other Expertise: Microsoft SQL, No SQL databases, Linux, HTML, and Latex, etc.

INDUSTRIAL RESEARCH EXPERIENCE

Deep learning Advisor, Veyetals, MarkiTech.AI, Oakville, Canada.   Feb 2024 - Present
- Deep Learning for Accurate Heart Rate Measurement from Face Videos.
  - Implemented a CNN-based deep learning solution for non-invasive heart rate and blood pressure measurement via facial video analysis with rPPG, achieving over 95% accuracy and being available as both a web platform and on-device app for Android and iOS. .

Industrial Postdoctoral Fellow ,   Jan 2018 - Mar 2021
École de Technologie Supérieure, & SPORTLOGiQ Inc., Montréal, Canada.
Mentor: **Prof. Eric Granger & Dr. Mehrsan Javan**.
- Visual Recognition for Large-Scale and Weakly-Labelled Video Data.
  - Developed a DL model for SPORTLOGiQ Inc. to re-identify players, monitor and track them, recognize activities, understand group behavior, and evaluate player and team performance in sports.

ACADEMIC RESEARCH EXPERIENCE

Postdoctoral Research Fellow, York University, Canada.   May 2022 - Present
Mentor: **Prof. Jimmy Huang**.
- A Systematic Study and Comprehensive Evaluation of ChatGPT on Benchmark Datasets.
- Spatio-temporal Deep Network for video person re-identification.
  - Developed a spatiotemporal deep learning model that can recognize visual patterns by capturing consistent salient features across space and time.

Visiting Scholar (Research Intern), University of California, Riverside, USA   May2016 - Oct 2016
Mentor: **Prof. Amit K. Roy-Chowdhury**.

- Unsupervised domain adaptation for multi-camera person re-identification.
  - Formulated a domain perceptive re-identification method based on a geodesic flow kernel that can effectively find the best source camera (already installed) to adapt with a newly introduced target camera without requiring a costly training phase.

Doctoral Student Researcher,   Mar 2014 - Apr 2017
Pattern Analysis and Computer Vision, Istituto Italiano di Tecnologia, Italy.
PhD Supervisor: **Prof. Vittorio Murino**, Tutor: **Dr. Alessandro Perina**.

- Generative and Transformation learning for part-based re-identification.   Jan 2014 - Sep 2015
  - Designed and implemented a generative model that effectively segments human appearance into meaningful parts by removing background elements and also incorporates brightness transfer functions to learn how a person's appearance changes when transitioning between cameras.

Master Thesis,   Jan 2011 - June 2011

- Computer Aided Melanoma Skin Cancer Detection.
  - Used the existing segmentation techniques to investigate their effectiveness for segmenting Melanoma Skin Cancerous Images and help to extract robust features from the foreground for better classification.

SELECTED JOURNAL PUBLICATIONS

1. **A. Bhuiyan**, Aijun An, Jialie Shen, and Jimmy Xiangji Huang. *'Non-parametric Normalization for Enhanced Person Re-identification'*, Pattern Recognition, 111356, 2025.

2. Shiru Wang, Wenna Du, **Amran Bhuiyan**, Zehua Chen. *'Personalized Recommendation Method Based on Rating Matrix and Review Text'*, Computational Intelligence, e70024, 2025.

3. JiaJia Wang, Jimmy Xiangji Huang, Xinhui Tu, Junmei Wang, Angela Huang, Md Tahmid Rahman Laskar and **Amran Bhuiyan** *'Utilizing BERT for Information Retrieval: Survey, Applications, Resources and Challenges'*, ACM Computing Surveys, 2024.

4. **A. Bhuiyan**, Jimmy Xiangji Huang, and Aijun An *'IGMG: Instance-guided Multi-Granularity for Domain Generalizable Person Re-identification'*, Computer Vision and Image Understanding (CVIU), 240, 103905, 2023.

5. Uddin, M.K.; **Bhuiyan, A.**; Bappee, F.K.; Islam, M.M.; Hasan, M. *'Person Re-Identification with RGBD and RGBIR Sensors: A Comprehensive Survey.* Sensors 2023, 23, 1504.

6. **Amran Bhuiyan**, Jimmy Xiangji Huang, *'STCA: Utilizing a spatio-temporal cross-attention network for enhancing video person re-identification.* Image and Vision Computing, May 2022, Elsevier, 104474.

7. Frank Hafner, **Amran Bhuiyan** , Julian F. P. Kooij and Eric Granger, *'A Cross-Modal Distillation Network for Person Re-identification in RGB-Depth'*, Computer Vision and Image Understanding (CVIU) 2022, 103352, ISSN 1077-3142, Elsevier.

8. Hugo Masson*, **Amran Bhuiyan***, Le Thanh Nguyen*, Parthipan Siva, Mehrsan Javan, Eric Granger, *'A Survey of Pruning Methods for Efficient Person Re-identification Across Domains.* EURASIP Journal on Image and Video Processing volume 2021, Article number: 22 (2021), SpringerOpen. (* - equal contribution).

9. Madhu Kiran, **Amran Bhuiyan**, Louis-Antoine Blais-Morin, Mehrsan Javan, Ismail Ben Ayed, Eric Granger, *'Flow-Guided Attention Networks for Video-Based Person Re-Identification.* Image and Vision Computing Volume 113, September 2021, Elsevier, 104246.

10. Uddin, Md Kamal, **A. Bhuiyan**, and Mahmudul Hasan.*'Impact of Kernel-PCA on DifferentFeatures for Person Re-Identification.* International Journal of Innovative Technology and Exploring Engineering (IJITEE), Volume 10, Issue 11, Pages 76-81, 2021.

11. Rameswar Panda*, **Amran Bhuiyan*** , Vittorio Murino and Amit K. Roy-Chowdhury, *'Adaptation of person re-identification models for on-boarding new camera (s).* Pattern Recognition, 96, p.106991, 2019.(* - equal contribution) I.F. - 7.196

12. **Amran Bhuiyan**, Alessandro Perina and Vittorio Murino,*'Exploiting multiple detections for re-identification systems'*, Journal of Imaging, 4(2), pp.17, MDPI 2018.

13. **Amran Bhuiyan**, Ibrahim Azad and Kamal Uddin, *'Image Processing for Skin Cancer Features Extraction'*, International Journal of Science and Engineering Research (IJSER), ISSN 2229-5518, Volume 4, Issue 2, February 2013.

14. Mahmudul Hasan, and **Amran Bhuiyan**,*'Design and performance evaluation of three-phase inverter for grid-connected photovoltaic system'*, Journal of Electrical Engineering (JEE): Article 11.04.10, Volume 11 / 2011 - Edition: 4, PP. 68-75, Poltechnica Publishing House, Romania, November 2011.

CONFERENCE PR0CEEDINGS

1. Md Tahmid Rahman Laskar, Sawsan Alqahtani, M Saiful Bari, Mizanur Rahman, Mohammad Abdullah Matin Khan, Haidar Khan, Israt Jahan, **Amran Bhuiyan**, Chee Wei Tan, Md Rizwan Parvez, Enamul Hoque, Shafiq Joty, Jimmy Huang. *'A Systematic Survey and Critical Review on Evaluating Large Language Models: Challenges, Limitations, and Recommendations '*, In the 2024 Conference on Empirical Methods in Natural Language Processing (EMNLP)**(Oral)**, 2024.

2. Md Tahmid, M Saiful, Mizanur Rahman, **Amran Bhuiyan**, Shafiq Joty, and Jimmy Huang. *'A Systematic Study of ChatGPT on Benchmark Datasets,* In Findings of the 60th Annual Meeting of the Association for Computational Linguistics (ACL'23 Findings) 2023.

3. Djebril Mekhazni, **Amran Bhuiyan**, George Ekladious and Eric Granger, *'Unsupervised Domain Adaptation in the Dissimilarity Space for Person Re-identification*, In 16th European Conference on Computer Vision (ECCV) 2020.

4. **Amran Bhuiyan**, Yang Liu, Parthipan Siva, Ismail Ben Ayed, Mehrsan Javan and Eric Granger, *'Gated Fusion for Pose-Aligned Person Re-identification*, In IEEE Winter Conf. on Applications of Computer Vision (WACV, 2020).

5. Hafner, Frank M., **Amran Bhuiyan**, Julian FP Kooij, and Eric Granger. *'RGB-depth cross-modal person re-identification.* In 2019 16th IEEE International Conference on Advanced Video and Signal Based Surveillance (AVSS 2019), pp. 1-8. IEEE, 2019.

6. Rameswar Panda*, **Amran Bhuiyan***, Vittorio Murino and Amit K. Roy-Chowdhury, *'Unsupervised Adaptive Re-identification in Open World Dynamic Camera Networks'*, In: IEEE International Conference of Computer Vision and Pattern Recognition (CVPR) (***Spotlight***), 2017. * - Indicates equal contribution.

7. Xiangping Zhu, **Amran Bhuiyan**, Mohamed Lamine Mekhalfi and Vittorio Murino, *'Exploiting Gaussian Mixture Importance for Person Re-identification'*, In IEEE AVSS 2017 **(Oral)**, Lecce, Italy.

8. Behzad Mirmahboub , Hamed Kiani Galoogahi, **Amran Bhuiyan**, Alessandro Perina, Baochang Zhang, A. Del Bue and V. Murino, *'Person re-identification using sparse representation with manifold constraints'*, In IEEE ICIP**(Oral)**, 2016.

9. **Amran Bhuiyan**, Behzad Mirmahboub, Alessandro Perina and Vittorio Murino, *'Person re-identification using robust brightness transfer functions based on multiple detections'*, In International Conference on Image Analysis and Processing, pp. 449-459. Springer, Cham, 2015.

10. **Amran Bhuiyan**, Alessandro Perina and Vittorio Murino, *'Exploiting multiple detections to learn robust brightness transfer functions in re-identification systems'*, In IEEE ICIP **(Oral)**, 2015.

11. **Amran Bhuiyan**, Alessandro Perina and Vittorio Murino, *'Person re-identification by discriminatively selecting parts and features'*, In: European Conference on Computer Vision (ECCV) 2014 - Workshop on Visual Surveillance and Re-Identification (VS-Re-ID) - **Winner of the INTEL Best paper award**, LNCS Vol.8927, 2015, pp 147-161, Springer International Publishing Switzerland.

PATENTS

1. Mehrsan Javan, **Amran Bhuiyan**, Yang Liu, Parthipan Siva, Eric Granger, and Ismail Ben Ayed, *'System and Method for Identity Preservative Representation of Persons and Objects Using Spatial and Appearance Attributes*, US Patent Pub. No: US 2022/0383662 A1, Pub. Date: Dec. 01, 2022.

ACADEMIC PROJECTS AND FUNDING

- Domain Generalization for Person Re-identification,   Dec 2022- Dec 2023
  SSHRC Research Funds. York University, Canada.
  - The main objective of this project is to investigate and develop a a new system for accurately recognizing or re-identifying individuals and other objects across a surveillance network.

INVITED TALKS

- Impact of Reinforcement Learning in Computer Vision, UCR Video Computing Reading Group, Riverside (Aug 2016).
- Brightness Transfer Function for Person Re-Identification, ICIP Conference, Quebec (Sep 2015).
- Part-based Feature Importance for Person Re-Identification, ECCV 2014 , Zurich (Sep 2014).

AWARDS and HONORS

- Recipient of Postdoctoral Fellowship Award, Canada.   May 2021 - May 2024
- Recipient of Mitacs Elevate Postdoctoral Fellowship, Canada.   Jan 2019 - Mar 2021
- Recipient of Mitacs Accelerate Internships, Canada.   Jan 2018 - Dec 2018
- Scholarship funded by Istituto Italiano di Tecnologia (IIT), Italy. Foreign Internship Grant.   May 2016 - Oct 2016
- Scholarship funded by Istituto Italiano di Tecnologia (IIT), Italy. Ph.D. Grant.   Jan 2014 - Apr 2017
- Erasmus Mundus ECW Scholarship funded by European Union. Masters Grant.   Sep 2009 - June 2011
- Academic Merit Scholarship for securing 4th position in B.Sc. Exam.   Jan 2009 - Sep 2009

PROFESSIONAL SERVICES

- **Technical Program Co-Chair and Track-chair** of the International Conference on Machine Intelligence and Emerging Technologies 2022 (MIET 2022).
- Reviewer of top-tier computer vision journals IEEE Trans. on Pattern Analysis and Machine Intelligence, Pattern Recognition, TCSVT, Sensor, and CVIU.
- Reviewer of top-tier computer vision conferences CVPR, NeurIPS, ICCV, ECCV, WACV, AVSS, ICML, ICPRAI, and ICIP.

REFERENCES

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