# Nahid Ul Islam

Tempe, Arizona, USA; nuislam@asu.edu; **(210) 718-1654**
Webpage | LinkedIn | Google Scholar | GitHub

## SUMMARY


- **Six months** of internship experience on Machine Learning and Computer Vision from **Intel Corporation**.
- Research experience in **Machine Learning**, **Computer Vision,** and **Image processing**.
- Experience in using State-of-the-Art deep learning approaches for natural and medical images.
- Proficiency in advanced level **Programming**, **Algorithms**, **Data Structure** and **Database Design**.
- Experience in **Java**, **C/C++**, **MATLAB** and **Python**.
- Strong knowledge in **Object-Oriented Analysis/Design** and **Programming with C/C++ (STL)** and **Java**.


## EDUCATION

- **Doctor of Philosophy (Ph.D.) in Computer Science** 2018 – Present
  Arizona State University, USA GPA: 4.00/4.00
  Research Area: Computer Vision, Deep Learning, Medical Image Analysis
  Supervisor: Dr. Jianming Liang
- **Master of Science (M.Sc.) in Computer Science** 2015 – 2017
  University of Texas at San Antonio, USA GPA: 3.90/4.00
  Research Area: Computer Vision, Machine Learning, Image Processing
  Supervisor: Dr. Qi Tian
- **Bachelor of Science (B.Sc.) in Computer Science** 2010 – 2014
  BRAC University, Bangladesh GPA: 3.07/4.00
  Research Area: Image Processing
  Supervisor: Rubel Biswas

## EXPERIENCE

- **Arizona State University** Tempe, AZ
  Graduate Research Assistant Aug 2018 – Present
  – Published **four** conference papers and **two** journal papers, contributing novel insights to the fields of Computer Vision and Medical Image Analysis.
  – Currently have **four** patents pending, showcasing a strong commitment to groundbreaking research and technological progress in the field.
- **Internship in Machine Learning and Computer Vision** Hillsboro, OR
  Graduate Technical Intern at **Intel Corporation** (*Client Computing Group*) May 2017 – Aug 2017
  – Introduced deep learning and computer vision approach for obstacle detection/classification and collision prediction for moving objects using different deep neural network implementations (i.e. R-CNN, Fast RCNN, Faster RCNN, Mask RCNN). [Python]
  – Investigated and analyzed the results from the experiments and presented findings as well as data to the team towards pathfinding/technical readiness.
- **Internship in Machine Learning and Computer Vision** Hillsboro, OR
  Graduate Software Engineering Intern at **Intel Corporation** (*Client Computing Group*) Feb 2017 – May 2017
  - Researched the application of Deep Learning technologies to recognize Human Activities from video, with application to novel peace-of-mind Smart Home usages.
  - Developed a human activity recognition system based on computer vision and deep learning technology, starting with an established deep learning network framework, and adapting it to the project requirements by configuring metadata, customizing scripts, iteratively making changes, and checking results to improve the accuracy/results etc. Used different deep learning and computer vision frameworks/algorithms such as CAFFE, convolutional neural network, optical flow. *[Python]*
  - Enhanced the direction of the different phases of the project by thoroughly analyzing the data collected by the iterative experiments. Moreover, data analysis was done for evaluating results of multiple methods and comparison between them.

## THESIS

- **University of Texas at San Antonio**
  **M.Sc. Thesis:** Human Face Detection Following by Gender and Age Estimation Using Patch Based Discrete Cosine Transformation and Histogram Oriented Gradients.
  - Worked on Face Detection, Gender Classification and Age Estimation classification algorithm enhancement using Discrete Cosine Transformation, Histogram of Oriented Features as Feature Extraction and Convolutional Neural Network and Support Vector Machine as Machine Learning techniques.
- **BRAC University**
  **B.Sc. Thesis:** Automated Parking Lot Management for Bengali License Plates Using Hough Transformation and Image Segmentation.
  - Worked on Automated parking lot management system for Bengali Language, by using Connected Component labeling, Bounding Box, Canny Edge Detection & Hough Transformation for license plate localization and used OCR for pattern recognition following by database to store as well as manipulating the system.

## PUBLICATIONS

### Peer-refereed Journal Publication

- **Islam, N. U.**, Zhou, Z., Gehlot, S., Gotway, M. B., & Liang, J. (2024). Seeking an optimal approach for Computer-aided Diagnosis of Pulmonary Embolism. Medical Image Analysis, 91, 102988.
- Guo, Z., **Islam, N. U.**, Gotway, M. B., & Liang, J. (2024). Stepwise incremental pretraining for integrating discriminative, restorative, and adversarial learning. Medical Image Analysis, 103159.

### Peer-refereed Conference Full Publications

- Pang, J., Haghighi, F., Ma, D., **Islam, N. U.**, Hosseinzadeh Taher, M. R., Gotway, M. B., & Liang, J. (2022, September). POPAR: Patch Order Prediction and Appearance Recovery for Self-supervised Medical Image Analysis. In MICCAI Workshop on Domain Adaptation and Representation Transfer (pp. 77-87). Cham: Springer Nature Switzerland.
- Guo, Z., **Islam, N. U.**, Gotway, M. B., & Liang, J. (2022, September). Discriminative, restorative, and adversarial learning: Stepwise incremental pretraining. In MICCAI Workshop on Domain Adaptation and Representation Transfer (pp. 66-76). Cham: Springer Nature Switzerland.
- Ma, D., Hosseinzadeh Taher, M. R., Pang, J., **Islam, N. U.**, Haghighi, F., Gotway, M. B., & Liang, J. (2022, September). Benchmarking and boosting transformers for medical image classification. In MICCAI Workshop on Domain Adaptation and Representation Transfer (pp. 12-22). Cham: Springer Nature Switzerland.
- **Islam, N. U.**, Gehlot, S., Zhou, Z., Gotway, M. B., & Liang, J. (2021). Seeking an optimal approach for computer-aided pulmonary embolism detection. In Machine Learning in Medical Imaging: 12th International Workshop, MLMI 2021, Held in Conjunction with MICCAI 2021, Strasbourg, France, September 27, 2021, Proceedings 12 (pp. 692-702). Springer International Publishing.

### Publicly Released Software

- Achieving discriminative, restorative, and adversarial learning via stepwise incremental pretraining (https://github.com/JLiangLab/StepwisePretraining)
- Benchmarking and boosting transformers for medical image classification (https://github.com/JLiangLab/BenchmarkTransformers)
- Restoring patch order and appearance for Self-supervised Medical Image Analysis (https://github.com/JLiangLab/POPAR)
- Evaluating and optimizing deep learning methods for computer-aided diagnosis of pulmonary embolism (https://github.com/jlianglab/CAD PE)

## PATENTS

### Patents Pending

- D. Ma, M. R. Hosseinzadeh Taher, J. Pang, **N. U. Islam**, F. Haghighi, and J. Liang. Benchmarking and Boosting Transformers for Medical Image Classification. (Filed on August 2, 2022 through Arizona Technology Enterprises, M23-030L)
- J. Pang, F. Haghighi, D. Ma, **N. U. Islam**, M. R. Hosseinzadeh Taher, and J. Liang. POPAR: Patch Order Prediction and Appearance Recovery for Self-supervised Medical Image Analysis. (Filed on August 2, 2022 through Arizona Technology Enterprises, M23-029L)
- Z. Guo, **N. U. Islam**, and J. Liang. Discriminative, Restorative, and Adversarial Learning: Stepwise Incremental Pretraining. (Filed on August 2, 2022 through Arizona Technology Enterprises, M23-028L)

- **N. U. Islam**, S. Gehlot, Z. Zhou, and Jianming Liang. Seeking an Optimal Approach for Computer-Aided Diagnosis of Pulmonary Embolism. (Filed on August 23, 2021 through Skysong Innovations, M22-048L).

## AWARDS AND HONORS

- Certificate of Graduate and Professional Student Association (GPSA) Travel Grant Reviewer — May 2024
- Certificate of Graduate and Professional Student Association (GPSA) Travel Grant Reviewer — May 2023
- Travel Grant, MICCAI 2022, by Graduate and Professional Student Association, Arizona State University — Aug 2022
- Travel Grant, CVPR 2022, by Graduate and Professional Student Association, Arizona State University — Apr 2022
- Awarded prestigious CIDSE Doctoral Fellowship at Arizona State University — Aug 2018
- Honored by VC's List Award for securing highest GPA (4.0 out of 4.0) in the last semester — Dec 2014

## TECHNICAL SKILLS

- **Programming Languages**
  Python, MATLAB, C/C++, Java
- **Machine Learning Framework/Library**
  Pytorch, Karas, TensorFlow, Caffe
- **Scripting Language**
  PHP, HTML, CSS, XML, JavaScript
- **Operating System**
  Windows, Linux

## TEACHING EXPERIENCE

**Instructor** at Arizona State University

- Introduction to Engineering (*FSE100*) — Fall 2021
- CS Capstone Project I (*CSE485*) — Fall 2022, Spring 2023, Fall 2023, Spring 2024, Summer 2024
- CS Capstone Project II (*CSE486*) — Spring 2023

**Teaching Assistant** at Arizona State University

- Software Analysis and Design (*CSE464*) — Fall 2018, Spring 2019
- Introduction to Software Engineering (*CSE360*) — Fall 2018, Spring 2019, Fall 2019, Spring 2020, Fall 2020
- Distributed Software Development (*CSE445*) — Spring 2020
- Operating System (*CSE330*) — Fall 2020, Summer 2023
- Prin. Of programming language C++ (*CSE100*) — Spring 2021, Summer 2021
- Prin. Of programming language Java (*CSE110*) — Spring 2021
- Software Analysis and Design (*CSE460*) — Fall 2021
- Object Oriented Prog. And Data Struct. (*CSE205*) — Spring 2022
- Software Project, Process and Quality (*CSE566*) — Spring 2022, Summer 2022
- Software Quality Assurance and Testing (*CSE565*) — Fall 2022
- Mobile Computing (*CSE535*) — Summer 2023

**Grader** at University of Texas at San Antonio

- Computer Organization (*CSE3843*)
- Application Programming (*CSE3443*)

**Volunteer** at San Antonio Youth Code Jam

- Mentor of 25 young students to teach programming language "Scratch"

## SERVICES, LEADERSHIP AND TEAM-WORK

- **Travel Grant Reviewer** at Graduate and Professional Student Association, Arizona State University — 2020 – Present
- Elected as **Cultural & Sport Secretary** at ASU – Bangladesh Student Association. — 2019 – 2020
- Elected as **Executive Committee Member** at UTSA - Bangladesh Student Association. — 2016 – 2017
- Ranked as **Supernova** for being an award-winning performer in Cultural Club in BRAC University. — 2011 – 2012