Nahid Ul Islam

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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 biomedical 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.

PROFESSIONAL EXPERIENCE

- **Internship in Machine Learning and Computer Vision** ***May'2017 to Aug'2017***
  Graduate Technical Intern at **Intel Corporation** (*Client Computing Group*) *Hillsboro, OR*
  - 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** ***Feb'2017 to May'2017***
  Graduate Software Engineering Intern at **Intel Corporation** (*Client Computing Group*) *Hillsboro, OR*
  - 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]***
  - Proposed a solution for creating related dataset and built a proof-of-concept to test it out.
  - 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.

EDUCATION

- **Doctor of Philosophy, Computer Science** Aug'18 - Present
  Arizona State University, USA *GPA: 4.00*
  Supervisor: Dr. Jianming Liang

- **Master of Science, Computer Science** Aug'15 - Dec'17
  University of Texas at San Antonio, USA *GPA: 3.90*
  Supervisor: Dr. Qi Tian (*Multimedia and Vision Lab*)

- **Bachelor of Science, Computer Science** Aug'10 - Sept'14
  BRAC University, Bangladesh
  Supervisor: Rubel Biswas

RESEARCH INTEREST

- Computer Vision
- Machine Learning
- Image Processing

TECHNICAL SKILLS

- **Programming Languages**
  Python, MATLAB, C/C++, Java
- **Machine Learning Framework/Library**
  TensorFlow, PyTorch, TFLearn, Keras, Caffe. Scikit-learn
- **Scripting Language**
  PHP, HTML, CSS, XML, JavaScript
- **Operating System**
  Windows, Linux

RESEARCH EXPERIENCE & SELECTED PROJECTS

- **Research experience in Biomedical Imaging with Computer Vision**
  - Working on Pulmonary Embolism (PE) detection and localization from 3D volumetric CT scan using Transfer Learning, Sequential Model training, Contrastive Learning and Transformer-based Model.

- Analyzing transfer learning from ImageNet models to biomedical Chest X-ray images via fine-tuning and retraining model as well as looking into different quality assessment techniques to measure transferability between domain gaps.
- Delving into Generative Adversarial Network to successfully remove small objects from an input image without losing overall image information.
- Examining knowledge distillation approaches to combine multiple trained models into one universal pretrained model for classification and segmentation task with respect to different modalities.

- **Research experience in Machine Learning and Computer Vision** **(*M.Sc. Thesis*)**
  - 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. (*Supervisor: Dr. Qi Tian*) ***[MatLab]***
- **Research experience in Image Processing** **(*B.Sc. Thesis*)**
  - Developed an 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. ***[MatLab & MySQL]***
- **Restaurant Review Prediction on Yelp Dataset**
  - Worked on Yelp Dataset to data process, transform and analyze for selecting and reducing features/attributes to build a review prediction system using different tools/frameworks of Python (Numpy, SciPy, Matplotlib, Pandas and Scikit). Also analyzed the performance in different machine learning algorithms. ***[Python]***
- **Data Mining Project on Activity Recognition**
  - Developed a computing system that can understand human activities. Different feature extraction methods were used on activity data from EMG sensors. Feature selection was done using Principle Component Analysis and activity recognition was done exploring various machine learning algorithms to understand which performed better on the dataset. ***[MatLab]***
- **Implementation of a Core Compiler**
  - Developed a compiler for the TL language as described by the TL15.0 specification. The resulting compiler compiles TL source code and produces MIPS assembly code after performing lexical analysis, AST Tree creation, and Code generation and performance optimization. ***[Java & Graphviz]***
- **Operating System Scheduling Algorithms**
  - Designed and developed a simulator for Scheduling Algorithms such as FCFS, SJF, PSJF and RR using state machine design. ***[C/C++]***
- **Distributed System & Multithreaded Programming**
  - Implemented Distributed n-queen problem solver using multithreaded server/client programming in Linux environment. To handle multithreaded programming and server/client relations, POSIX threads and Connection-Oriented UICI framework were used. ***[C/C++]***
  - Developed a distributed client-server paradigm as well as peer to peer paradigm tracking and chatting system using Java RMI. ***[Java]***
- **Software Testing and Quality Assurance**
  - Performed Graphical User Interface (GUI) testing for an open source Android Project known as Wikipedia using Espresso Testing Framework. ***[Android Studio & Java]***
  - Implemented JUnit Test Framework to write test cases for the Java Mail API also knows as Common Email (version 1.3.2). ***[Java]***

TEACHING EXPERIENCES

- **Teaching Assistant & Lab Instructor** Aug'2018 - Present
  Arizona State University
  - Intro to Software Engineering
  - Software QA and Testing
  - Prin. Of programming language (C++)
  - Prin. Of programming language (Java)
  - Operating System
  - Software Analysis and Design
  - Object Oriented Prog. And Data Struct.
  - Software Project, Process and Quality
- **Grader** Aug'2015 – Dec'2017
  University of Texas at San Antonio
  - Computer Organization (CS3843)
  - Application Programming (CS3443)
- **Volunteer**
  San Antonio Youth Code Jam
  - Mentor of 25 young students to teach programming language "*Scratch*".

HONOR, AWARD, LEADERSHIP AND TEAM-WORK

- Received prestigious **CIDSE Doctoral Fellowship** for the academic year 2018-2019 at **Arizona State University**.
- Elected as Cultural Secretary at ASU – Bangladesh Student Association. (2019 - 2020)
- Elected as Executive Committee Member at UTSA - Bangladesh Student Association. (2016 - 2017)
- Honored by **VC's List Award** for securing highest GPA (**4.0 out of 4.0**) in the last semester enrolling 13 credits (Undergrad Studies).
- Ranked as "Supernova" for being an award-winning performer in Cultural Club in BRAC University.