Mohammad Samin Yasar

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EDUCATION

University of Virginia, Charlottesville, Virginia — Aug 2017 – May 2022 [Expected]

- Ph.D. in Computer Engineering
  - Cumulative GPA: 3.78 / 4.00

BRAC University, Dhaka, Bangladesh — Jan 2012 – Apr 2015

- B.S. in Electrical and Electronic Engineering
  - Major: Electronics, Computer Group
  - Minor: Computer Science
  - Cumulative GPA: 3.90 / 4.00

RESEARCH EXPERIENCE

Dependable Systems and Analytics, University of Virginia

- Graduate Research Assistant — Aug 2017 – Present
  - Context detection in robotic surgery from kinematics data
  - Detecting unsafe gestures in surgical subtasks
  - Automated detection and localization of adverse events using vision based cues
  - Supervisor: Prof. Homa Alemzadeh

WORK EXPERIENCE

Graduate Teaching Assistant, University of Virginia — Jan 2019 – Present

- Course: Dependable Computing Systems
  - Conducting tutorial sessions, grading assignments and exams

Assistant Manager, MGH Group, Bangladesh — Sep 2015 – Aug 2017

- Department: Strategic Planning
  - Analyzing and forecasting market behavior for strategic investments

Undergraduate Teaching Assistant, BRAC University — May 2013 – Aug 2015

- Course: Electromagnetic Waves and Signal
  - Conducting tutorial sessions, grading assignments and exams

PUBLICATIONS

CONFERENCES

[1] **M. S.Yasar**, D. Evans and H. Alemzadeh , "Context-aware Monitoring in Robotic Surgery," *To appear in the International Symposium on Medical Robotics (ISMR), 2019.*, Atlanta, Georgia, USA, Apr 2019.

[2] **M. S.Yasar**, M. T. Rashid and M. K. Rhaman, "Digitization of the Entire Traffic System and Mitigation of the Ongoing Traffic Crisis Across Cities of Developing Nations," *IEEE TENCON 2015 - 2015 IEEE Region 10 Conference*, Macau, China Nov 2015.

[3] **M. S.Yasar** and M. T. Rashid, "Implementation of dynamic traffic light controllers using artificial neural networks to diminish traffic ordeals", *European Modelling Symposium*, Madrid, Spain Oct 2015.

SKILLS & EXPERTISE

Machine Learning

- Tensorflow
- Scikit learn
- PyTorch

Robotics

- ROS
- Gazebo

Computer Vision/Image Processing

- OpenCV
- Matlab

Computer Skills

- Programming Languages: Python, Java, C, C++, VHDL
- Code Instrumentation: LLVM, Pin
- Others: UNIX/Linux, BASH, Microsoft Office Suite, LaTeX

PROFESSIONAL EXPERIENCE

- **Reviewer**
  - TENCON — Jul 2016
- **External Reviewer**
  - DSN — Dec 2017, Dec 2018
  - ICCPS — Nov 2018

MENTORING EXPERIENCE

- **Mentor**, University of Virginia
  - Parisa Roohafzaii - Undergraduate in CS — Sep 2018 - Dec 2018
- **Mentor**, Young Digital Entrepreneur Camp, Bangladesh — Nov 2016

SELECTED PROJECTS

- **Detection and Tracking of subject in a video based on a given template**
  - Extracted HOG features of the template from the first frame of the video
  - Trained a discriminative classifier (linear SVM) to distinguish between the subject and background based on HOG features, using a sliding window approach
  - Code availability : https://github.com/MohammadYasar/ObjectTracking
- **Intrusion Detection System for tele-operated surgery**
  - Developed an attack model for simulating intrusion into the robot network
  - Distinguished between normal tele-operation and abnormal behavior by leveraging previously recorded data patterns
  - Code availability : https://github.com/MohammadYasar/SWSecurity/
- **Generic interface for applying machine learning tools to detect fraudulent transactions**
  - Designed the pipeline for data preprocessing and feature selection for an unbalanced dataset
  - Trained and validated different classification models (kNN, SVM, XGBoost, Random Forest) using double cross validation
  - Code availability: https://github.com/MohammadYasar/MachineLearningGenericInterface
- **Hand-held game with adaptive difficulty based on player performance**
  - Developed a cube game, which evaluates the player's performance based on the number of cubes hit in a given time, on top of a Real Time Operating System
  - Adapted the difficulty of the game depending on how the player performs

GRADUATE COURSES

- Deep Learning for Visual Recognition
- Statistical Learning and Graph Models
- Digital Image Processing
- Software Security
- Dependable Computing
- Computer Architecture and Design
- Advanced Embedded Systems
- Machine Learning

AWARDS & SCHOLARSHIPS

- **Second place, ECE Research Poster competition**, University of Virginia — Sep 2018
  Annual Research Poster Session for Graduate Students in ECE
- **Vice Chancellor's/Dean's List**, BRAC University — 2012 – 2015
  For attaining a semester GPA of at least 3.7 (Dean's List) or 3.9 (Vice Chancellor's List)
- **Merit Based Scholarship**, BRAC University — Jan 2012– Apr 2015
  Awarded on the basis of outstanding performance in GCE O and A Levels

REFERENCES

- **Professor Homa Alemzadeh**
  Assistant Professor
  Department of Electrical and Computer Engineering, Department of Computer Science
  University of Virginia
  Olsson Hall 259, Charlottesville, Virginia 22904, USA
  ha4d@virginia.edu
- **Professor David Evans**
  Professor
  Department of Computer Science
  University of Virginia
  Rice Hall 507, Charlottesville, Virginia 22904, USA
  evans@virginia.edu