Md. Saif Hassan Onim

Graduate Research and Teaching Assistant, Department of EECS, University of Tennessee, Knoxville, USA

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EDUCATION

- **University of Tennessee, Knoxville, TN-37916, USA**
  PhD in Computer Engineering
  GPA **4.00/4.00 (current)**
  2022–Ongoing

- **Military Institute of Science and Technology, Dhaka-1216, BD**
  Bachelor of Science in Electrical, Electronic and Communication Engineering
  CGPA **3.72/4.00**
  2016-2020
  Graduation: **January,2020.**

RESEARCH INTERESTS

- **Machine Learning, Computer Vision, Deep Learning, Image Segmentation, TinyML, Stress Detection, Wearable Devices, Embedded Systems, Quantum Machine Learning**

MAJOR ACADEMIC COURSES

- **Machine Learning and Neural Networks, Cloud and Edge Computing, Random Signals Processing, Computer Programming, Adversarial Machine Learning, Natural Language Processing, Embedded Systems**

PROGRAMMING SKILLS [Level: Advanced]

- **Programming Languages:** Python, Matlab , C, LaTeX, Assembly, Verilog. **Deep-learning and Computer Vision Library:** Keras, Pytorch, Tensorflow, OpenCV. **Design Tools:** Proteus, Emu8086 (Intel), Keil (AMD), ORCADE PSPICE, Quartus. **Hardware:** Multi-layer PCB designing, FPGA. **Graphics:** AUTOCAD, Adobe XD. **Networking:** CISCO Packet Tracer. **Operating System:** Windows, Linux (UBUNTU).

PUBLICATIONS

Posters

- **Md. Saif Hassan Onim** and Himanshu Thapliyal, "Performance of Quantum Hybrid Support Vector Machine in Stress Detection," *Quantum Computing User Forum, 2024, ORNL, Knoxville, TN, USA, August 12-15,* **2024**

- Elizabeth K. Rhodus, **Md. Saif hassan Onim**, Celeste Roberts, Sanjeev Kumar, Amer M Burhan, and Himanshu Thapliyal, "Utilization of Wearable Devices as Means for Remote Digital Biometric Data Collection in a Community-based, Rural Randomized Controlled Trial Among Alzheimer's Disease Dyads," *in Alzheimer's Association International Conference. ALZ,* **2024**

- Himanshu Thapliyal and **Md. Saif Hassan Onim**,"Predicting Psychological and Physiological Stress with Biomarkers and Wearable Sensors", *Military Health System Research Symposium (MHSRS),* **2024**

- Celeste Roberts, **Md. Saif Hassan Onim**, Sanjeev Kumar, Amer M Burhan, Himanshu Thapliyal and Elizabeth K. Rhodus, "Implementation of RCT Intervention with Wearable Digital Biometric Collection in Rural Community-residing Dementia Dyads", *The 19th Annual Spring Conference of the UK Center for Clinical and Translational Science (CCTS),* **2024**

Conference Papers

- Tyler Cultice, **Md. Saif Hassan Onim**, Annarita Giani and Himanshu Thapliyal, "Anomaly Detection for Real-World Cyber-Physical Security using Quantum Hybrid Support Vector Machine", *Proceedings of IEEE Computer Society Annual Symposium on VLSI 2024 (ISVLSI 2024), Knoxville, TN, USA, July 1-3,* ***2024 (Best Paper Award)***

- **Md. Saif Hassan Onim** and Himanshu Thapliyal, "Predicting Stress in Older Adults with RNN and LSTM from Time Series Sensor Data and Cortisol", *Proceedings of IEEE Computer Society Annual Symposium on VLSI 2024 (ISVLSI 2024), Knoxville, TN, USA, July 1-3,* ***2024***

- **Md. Saif Hasan Onim** and Himanshu Thapliyal, "CASD-OA: Context-Aware Stress Detection for Older Adults with Machine Learning and Cortisol Biomarker", *Proceedings of the Great Lakes Symposium on VLSI 2023 (GLSVLSI 2023), Knoxville, TN, USA. ACM, New York, NY, USA, June 5–7,* ***2023***

- Md. Akiful Hoque Akif, Koushik Roy, Nawsher Abdullah, Nusrat Zahan Priota and **Md. Saif Hasan Onim**, "Performance Analysis of Machine Learning Models for Cheating Detection in Online Examinations", *Proceedings of IEEE 25th International Conference on Computer and Information Technology (ICCIT), Cox's Bazar, Bangladesh,* ***2022***

- Md Wahiduzzaman Arnob, Arunima Dey Pooja and **Md. Saif Hasan Onim**, "A Combined PCA-MLP Network for Early Breast Cancer Detection", *Proceedings of 2022 IEEE 2ND Asian Conference on Innovation in Technology (ASIAN-CON2022), Pune, India, August* ***2022***

- Tareque Bashar Ovi, Sauda Suara Naba, Dibaloke Chanda and **Md. Saif Hasan Onim**, "A Transfer-Learning Based Ensemble Architecture for ECG Signal Classification", *Proceedings of IEEE Region 10 Symposium (TENSYMP2022), Mumbai, India, Jun.* ***2022***

- Abtahi Ishmam, Mahmudul Hasan, **Md. Saif Hassan Onim**, Koushik Roy, Md. Akiful Hoque Akif and Hussain Nyeem, "Modelling Lips-State Detection Using CNN for Non-Verbal Communications", *Proceedings of IEEE International Conference on 4th Industrial Revolution and Beyond (IC4IR), 2021, Dhaka, Bangladesh,* ***2021***

- Shah Mohazzem Hossain, **Md. Saif Hasan Onim**, Sagor Biswas and Abdul Hasib Chowdhury, "Application of Machine Learning for Optimal Placement of Distributed Generation", *Proceedings of IEEE International Conference on Information and Communication Technology for Sustainable Development (ICICT4SD), Dhaka, Bangladesh, pp. 231-234.* ***2021***

- **Md. Saif Hasan Onim**, Muhaiminul Islam Akash, Mahmudul Haque and Raiyan Ibne Hafiz, "Traffic Surveillance using Vehicle License Plate Detection and Recognition in Bangladesh", *Proceedings of IEEE International Conference on Electrical and Computer Engineering, pp. 121-124,* ***2020***

- **Md. Saif Hassan Onim**, Aiman Rafeed Ehtesham, Amreen Anbar, A. K. M. Nazrul Islam and A. K. M. Mahbubur Rahman, "LULC Classification by Semantic Segmentation of Satellite Images Using FastFCN", *Proceedings of IEEE International Conference on Advanced Information and Communication Technology, pp. 472-476,* ***2020***

Journals

- **Md. Saif Hassan Onim**, Himanshu Thapliyal and Elizabeth K. Rhodus, "Utilizing Machine Learning for Context-Aware Digital Biomarker of Stress in Older Adults" *Information, 15, no. 5: 274,* ***2024***

- Dibaloke Chanda, **Md. Saif Hassan Onim**, Hussain Nyeem, Tareque Bashar Ovi, and Sauda Suara Naba, "Dcensnet: A New Deep Convolutional Ensemble Network for Skin Cancer Classification", *Biomedical Signal Processing and Control, vol. 89, p. 105757,* **2024**

- **Md. Saif Hasan Onim**, Himanshu Thapliyal and Elizabeth K. Rhodus "A Review of Context-Aware Machine Learning for Stress Detection", *IEEE Consumer Electronics Magazine, vol. 13, no. 4, pp. 10-16, July* **2024**

- **Md. Saif Hassan Onim**, Hussain Nyeem, Md. Wahiduzzaman Khan Arnob and Arunima Dey Pooja "Unleashing the power of generative adversarial networks: A novel machine learning approach for vehicle detection and localisation in the dark," *Cognitive Computation and Systems, vol. 5, no. 3, pp. 169–180,* **2023**.

- **Md. Saif Hasan Onim**, Zubayar Mahatab Md Sakif, Adil Ahnaf, Ahsan Kabir, Abul Kalam Azad, Amanullah Maung Than Oo, Rafina Afreen, Sumaita Tanjim Hridy, Mahtab Hossain, Taskeed Jabid and Md Sawkat Ali, "Solnet: A Convolutional Neural Network for Detecting Dust on Solar Panels", *Energies, vol. 16, no. 1,* **2023**

- **Md. Saif Hasan Onim**, Hussain Nyeem, Koushik Roy, Mahmudul Hasan, Abtahi Ishmam, Md. Akiful Hoque Akif, Tareque Bashar Ovi, "BLPnet: A new DNN model and Bengali OCR engine for Automatic License Plate Recognition", *Array, vol. 15, p. 100244,* **2022**

TEACHING EXPERIENCE

- Teaching Assistant, Dept of EECS, University of Tennessee, Knoxville (August, 2022-Present)

- Adjunct Lecturer, Dept. of EECE, Military Institute of Science and Technology (January, 2020-August, 2022)

- Mentor, Visual Information Processing Research Group, Dept. of EECE, Military Institute of Science and Technology (April, 2021-August, 2022)

DISTINCTIONS AND AWARDS

- **2024-present:** Senator, Graduate Student Senate, UTK

- **2023-2024:** Outstanding Graduate Teaching Assistant in Computer Engineering, EECS, UTK

- **2023-2024:** Publicity and Social Media Officer, Bangladesh Student Association (BSA), University of Tennessee, Knoxville, USA

- **2021-present:** Graduate Student Member, Institute of Electrical and Electronics Engineers (IEEE).

- **2023-present:** Member, Association for Computing Machinery (ACM).

- **2024:** Presentation Chair, ISVLSI'24

- **Reviewer:** IEEE TCE, PETI, AJNNA, GLSVLSI, ISVLSI