MD ABDUL BASET SARKER

Potsdam, NY, USA | sarkerm@clarkson.edu | +3152446816 | /in/baset-sarker | /baset-sarker

Education

PhD in Electrical and Computer Engineering, Clarkson University, USA — Expected - Spring 2025

MSc in Electrical and Computer Engineering, Clarkson University, USA — 2021 – 2024

Experience

Research Assistant | Clarkson University | Potsdam, USA — Jan 2021 - Present

- Developed and tested real-time control algorithms for a vision-based prosthetic hand using deep learning on edge devices (Raspberry Pi, Jetson), employing model quantization and pruning for optimal performance.
- Implemented and tested object detection and tracking algorithms for a microplastic detection system, achieving 95% accuracy using a vision-based approach.
- Designed and tested an autonomous wheelchair navigation system using sensor fusion (vision, motion data) and deep learning for object detection and avoidance, improving safety by 20%.
- Trained, optimized, and deployed a multi-modal sensor fusion system for robotic manipulation on an FPGA (KV260), achieving real-time performance with 90% accuracy in object recognition.

Senior Software Engineer | ACI Limited | Dhaka, Bangladesh — Oct 2019 - Jan 2021

- Led multiple projects using Scrum and Jira, applying design patterns for efficient software architecture.
- Developed an open-source map solution leveraging source control management (GitHub) and adhering to coding standards, reducing Google Maps costs by 50%.
- Implemented a CI/CD pipeline using Jenkins and GitHub, showcasing design experience in automation.
- Designed and implemented a time-attendance system, improving workforce management efficiency by 20% through streamlined HR processes.

Software Engineer | PRAN-RFL Group | Dhaka, Bangladesh — Jul 2016 - Sep 2019

- Designed, developed, and troubleshot applications using Python, Java, and C++.
- Developed real-time Production Management software for 26 factories and over 5000 products, improving production tracking by 40%.
- Created dynamic quality control software for 15 food factories, reducing development costs by 80%.
- Worked on an Embedded Linux (Yocto) platform for Vision TV R&D.

Embedded System and Software Engineer | SinePulse GmbH | Dhaka, Bangladesh — Nov 2014 - Jul 2016

- Designed, developed, and troubleshooted embedded applications using C and C++ based systems.
- Engineered smart home solutions including automated smart switches and lighting systems.
- Designed PCBs using EagleCAD and Proteus, optimizing circuit layouts for reliability and manufacturability.
- Implemented MQTT and Bluetooth protocols in smart home solutions to enable secure and low-latency device communication.

Skills

Python, C, C++, Go, Java, AI, ML, TensorFlow, PyTorch, MySQL, APIs, Git, AWS, OpenCV, Docker, Jenkins, Computer Vision, Unix/Linux, IntelliJ IDE, Visual Studio Code, Eclipse, Raspberry Pi, Jetson Nano, Jetson Xavier, Google Coral Mini, FPGA KV260, STM32, Scrum, Jira, Embedded Linux, Yocto, MQTT, Bluetooth, EagleCAD, Proteus.

Honors and Awards

- (2024) Best Presentation Award on Digital Transformation for Child Biometric Data Acquisition Device, awarded by Clarkson Ignite, Clarkson University, USA.
- (2024) NYS Center of Excellence in Healthy Water Solutions Fellowship, awarded by New York State Center of Excellence in Healthy Water Solutions, USA.
- (2023) Best Project Demonstration: Long Distance Face and Iris Capture using AI-enabled PTZ camera, awarded by Center for Identification Technology Research (CITeR), USA.
- (2022) Technology Showcase: Vision Controlled Prosthetic Hand, awarded by Clarkson University, USA.
- (2022) President's Challenge: 1st, 2nd, and 3rd place in three segments for Vision Controlled Prosthetic Hand, awarded by Clarkson University, USA.
- (2021) President's Challenge: 1st place for SMART THRONE in project demonstration video, awarded by Clarkson University, USA.
- (2019) Employee of the Month: Best performance in software development, awarded by PRAN-RFL Group, Bangladesh.

Publications

- **M. A. Baset Sarker**, Masudul Imtiaz, Tomas M Holsen, Abul Basar Baki, Real-Time Detection of Microplastics Using an AI Camera. Sensors. 2024; 24(13):4394. https://doi.org/10.3390/s24134394
- **M.A.B. Sarker**, SS. Hossain, N.G. Venkataswamy, S. Schuckers, M.H, Imtiaz, An Open-Source Face-Aware Capture System, Electronics 2024, 13, 1178. https://doi.org/10.3390/electronics13071178
- **M. A. Baset Sarker**, Juan Pablo Sola, Aaron Jones, Evan Laing, Ernesto S Sola, and Masudul H. Imtiaz, Vision Controlled Sensorized Prosthetic Hand, Interdisciplinary Conference on Mechanics, Computers and Electronics (ICMECE) 2022.
- E. Sola-Thomas, **M. A. Baset Sarker** and M. Imtiaz, "FPGA-Controlled AI Vision for Prosthetics hand," 2023 IEEE World AI IoT Congress (AIIoT), Seattle, WA, USA, 2023, pp. 0520-0524, doi: 10.1109/AIIoT58121.2023.10174491.
- **M. A. Baset Sarker**, Ernesto S Sola, Collin Jamieson, Masudul Imtiaz, Autonomous Movement of Wheelchair by Cameras and YOLOv7, 3rd International Electronic Conference on Applied Sciences, 1–15 December 2022.
- **M. A. Baset Sarker**, Usama Butt, Masudul Imtiaz, Abul Basar Baki, Automatic Detection of Microplastics in the Aqueous Environment, IEEE 13th Annual Computing and Communication Workshop and Conference (CCWC 2023).
- **M. A. Baset Sarker**, Usama Butt, Masudul Imtiaz, Abul Basar Baki, Robust Automatic Identification of Microplastics using AI-vision, A Conversation on Advances in Water Science and Technology (March 12-13, 2023).
- M. V. Caracciolo, O. Casciotti, C. D. Lloyd, E. Sola-Thomas, M. Weaver, K. Bielby, **M. A. Baset Sarker**, and M. H. Imtiaz, Autonomous Navigation System from Simultaneous Localization and Mapping, 2022 IEEE Microelectronics Design Test Symposium (MDTS).
- Garrett Stoyell, Anthony Seybolt, Thomas Griebel, Siddesh Sood, **M. A. Baset Sarker**, Abul Khondker, Masudul Imtiaz. The Mind-Controlled Wheelchair. 2022 ASEE St. Lawrence Section Annual Conference.
- E. Sola-Thomas, **M. A. Baset Sarker**, M. V. Caracciolo, O. Casciotti, C. D. Lloyd and M. H. Imtiaz, Design of a Low-Cost, Lightweight Smart Wheelchair, 2021 IEEE Microelectronics Design Test Symposium (MDTS), 2021, pp. 1-7.
- **M. A. Baset Sarker**, MH Imtiaz, SMM Al Mamun, "Development Of A Raspberry Pi Based Home Automation System," Bangladesh Journal of Physics, Dhaka, Bangladesh, 16, 59-66,2014