Md Sahil Hassan

PhD Candidate, University of Arizona

in Md Sahil Hassan ✉ sahilhassan@email.arizona.edu ⚲ Tucson, Arizona ✆ 520-302-7326 Publications

EXPERIENCE

Graduate Research Assistant
RECONFIGURABLE COMPUTING LAB, UNIVERSITY OF ARIZONA
Jan 2020 Onwards | Tucson, USA

◆ Implemented, optimized and published a C/C++ based portable multi-threaded runtime ecosystem for hardware-software co-design of Domain Specific SoCs.

Image Processing Intern
TELEDYNE PHOTOMETRICS
May 2019 – Aug 2019 | Tucson, Arizona

◆ Implemented a design flow that utilizes partial reconfiguration of FPGAs to reconfigure image processing modules dynamically in scientific cameras.

Graduate Teaching Assistant
UNIVERSITY OF ARIZONA
Aug 2018 - Dec 2020 | Tucson, USA
ECE 369A: FUNDAMENTALS OF COMPUTER ORGANIZATION

◆ Assisted students in implementing a 5-stage pipelined datapath on FPGA, implementing a MIPS assembly program and executing the program on the datapath.

SELECTED ACADEMIC PROJECTS

◆ Implemented a C-based network router in a virtual networking platform.
◆ Accelerated a C++ based Neuromorphic architecture simulator on GPU platform using CUDA.
◆ Developed a Neural Network based emotion classifier on Twitter data in Python.
◆ Designed and implemented a C-based simplified HLS to Verilog to task-graph and schedule generator.

SELECTED PUBLICATIONS

◆ "A Novel Implementation Methodology for Error Correction Codes on a Neuromorphic Architecture", in IEEE TCAD, 2023.
◆ "CEDR - A Compiler-integrated, Extensible DSSoC Runtime", in ACM TECS, 2022.
◆ "JITA4DS: Disaggregated Execution of Data Science Pipelines Between the Edge and the Data Centre", in Journal of Web Engineering, 2021.
◆ "RANC: Reconfigurable Architecture for Neuromorphic Computing", in IEEE TCAD, 2021.
◆ "Design of High Throughput FPGA-Based Testbed for Accelerating Error Characterization of LDPC Codes", in ReConFig, 2019.

SKILLS

Programming

Expert:
C • Python • CUDA • Verilog • VHDL

Proficient:
C++ • Vivado HLS • Bash Shell • Assembly

Intermediate:
Make • Javascript • HTML

Libraries/Frameworks

Numpy • SciPy • Tensorflow • Keras • Pandas • Multi-threading • LATEX

Tools/Platforms

Git • Vivado • Vitis • Petalinux • Quartus • Matlab • Linux terminal • Docker

EDUCATION

Ph.D. Student | GPA: 3.54/4.0
COMPUTER ENGINEERING, UNIVERSITY OF ARIZONA
Aug 2018 - Present | Tucson, Arizona
Expected graduation: Aug 2023
MINOR: COMPUTER SCIENCE
SUPERVISOR: DR. ALI AKOGLU

◆ Conducting research on designing intelligent multiobjective resource manager and schedulers for Domain Specific SoCs.
◆ Hardware-software co-design of deterministic algorithms for Neuromorphic computing architectures.

M.Sc. | CGPA: 3.63 / 4.0
ELECTRICAL AND ELECTRONIC ENGINEERING, UNIVERSITY OF DHAKA
Jan 2017 - Sep 2018 | Dhaka, Bangladesh

◆ Masters Thesis: Design and implementation of FPGA-based resource efficient AES encryptor-decryptor for IoT applications.

B.Sc. | CGPA: 3.55 / 4.0
ELECTRICAL AND ELECTRONIC ENGINEERING, UNIVERSITY OF DHAKA
Jan 2012 - Sep 2016 | Dhaka, Bangladesh

◆ Implemented experimental setup for measuring the impact of human body dimensions on the path loss in Wireless Body Area Network (WBAN).