Md Rubel Ahmed

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SUMMARY

- Research experience in TLM trace based SoC validation
- Three times TA for an FPGA design course
- Working knowledge of MIPS32, RISC-V, x86
- Taught Computer Architecture course(undergraduate)

EDUCATION

Doctor of Philosophy in Computer Science and Engineering *Exp. Dec. 2023*
University of South Florida, Tampa, FL CGPA: 3.77/4.00
Bachelor of Science in Computer Science and Engineering *March 2017*
Khulna University of Engineering and Technology, Bangladesh CGPA: 3.23/4.00

TECHNICAL STRENGTHS

Programming Languages	C/C++, VHDL, Python
EDA Tools	Xilinx ISE Webpack, Vivado HLx
Architectural Simulator	Simplescalar, Mars, and gem5
Miscellaneous	Reinforcement Learning, Spin, Chisel 3, Rocket chip generator, Uppaal, git, vim

EXPERIENCE

Research Assistant *August 2019 - present*
The SEES Lab, U. of South Florida, Tampa, FL
- Worked on trace generation and validation of SoCs modeled in VHDL, gem5
- Worked on developing algorithm for automatic specification generation using data mining techniques

Graduate Teaching Assistant *August 2018 - present*
University of South Florida, Tampa, FL
- Instructor: Computer Architecture(undergrad)
- Teaching Assistant: Computer Architecture, FPGA Design, Web Systems for IT.

Software Engineer *Nov 2017 - July 2018*
Synchronous ICT, Dhaka, Bangladesh
- Worked on multimedia processing using FFMPEG.
- Developed data driven cross platform mobile app using React Native.

ACADEMIC PROJECTS

- **>128 bit prime factorizer :** Designed FPGA implementation of prime factorizer for larger numbers >128 bit using VHDL and implemented on Zedboard.
- **Single Cycle Processor:** Designed a single cycle processor consisting of ALU, and multibank main memory in logisim.
- **Memory system performance analysis:** Analyzed memory system performance using M5 simulator and 4 SPEC-CPU2000 benchmarks.
- **Addition and Multiplication matrix operations:** Designed an FSM controller to implement the multiplication and addition logic using Vivado and prototyped on Zed board.

PUBLICATIONS/POSTERS

- Salman Sadiq Shuvo , **Md Rubel Ahmed**, Hasan Symum, Yasin Yilmaz, "Deep Reinforcement Learning Based Cost-Benefit Analysis for Hospital Capacity Planning", International Joint Conference on Neural Networks (IJCNN'21) (Accepted)
- **Md Rubel Ahmed**, Hao Zheng, Parijat Mukherjee, Mahesh C. Ketkar, Jin Yang, "Mining Message Flows from System-on-Chip Execution Traces", The 22^{nd} International Symposium on Quality Electronic Design (ISQED'21)
- Salman Sadiq Shuvo , **Md Rubel Ahmed**, Sadia Binta Kabir, Shaila Akter Shetu, "Application of Machine Learning Based Hospital Up-gradation Policy for Bangladesh", 7^{th} International Conference on Networking, Systems and Security (NSysS'20)
- Amit Sutradhar, Md. Samiul Haque Sunny, Manash Mandal, **Rubel Ahmed**, "Design and construction of an automatic electric wheelchair: An economic approach for Bangladesh", 2017 3rd International Conference on Electrical Information and Communication Technology (EICT'17)
- Md Rubel Ahmed, Yuting Cao, Hao Zheng, "Specification Mining for SoC Validation using Data Mining Techniques", 56^{th} Design and Automation Conference (DAC), Jun 2019.(Poster)
- Md Rubel Ahmed, Yuting Cao, Hao Zheng, "Specification Mining from Message Flows for SoC Validation", 2019 FICS Research Conference on Cybersecurity, Mar 2019.(Poster)

AWARDS/ACTIVITIES

- A.Richard Newton Young Student Fellowship award: 56^{th}(2019) and 57^{th}(2020) Design Automation Conference
- Judge for 2021 USF Undergraduate Research Conference
- Contest programming, Robotics competition, Registered volunteer for Meal on Wheels of Tampa