IMAM AL RAZI

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EDUCATION

University of Arkansas, Fayetteville, Arkansas, USA *August 2017 - July 2022 (Expected)*
Ph.D. in Computer Engineering, Dept. of Computer Science and Computer Engineering CGPA-4.0/4.0
Research Interests: Research and development of design automation tools for VLSI, and Power Eletronics.
Bangladesh University of Engg. and Technology, Bangladesh *February 2011 - March 2016*
B.Sc. in Electrical and Electronic Engineering CGPA-3.74/4.0

TECHNICAL SKILLS

CAD Tools	ANSYS Q3D, ANSYS Workbench, ParaPower, Cadence IC Tools
Programming Skills	C, C++, Python, Verilog, Matlab
Others	MS-office, Linux, Git, SPICE Circuit Simulators

SELECTED PROJECTS

Embedded System Projects
1. Python-like interpreter: coded in C having basic functionalities like data type handling, list structure handling, addition, subtraction, multiplication, and division.
2. RTOS: A basic real-time home security operating system, coded in c and demonstrated in Arduino.

Reliability optimization of MCPM using PowerSynth
A transient thermal model is developed to predict thermal performance of an MCPM under PowerSynth scope. This model is used to optimize the layer stack, placement and routing of the MCPM aiming at electro-thermal reliability.

PowerSynth Software Development
Developing the EDA tool called PowerSynth is primary research for my Ph.D. In this project, I have been developing a a generic, scalable, and efficient layout engine for heterogeneous and 3-D Multi-Chip-Power-Module. This layout engine has been using for 2D/2.5D/3D power module layout synthesis and optimization. The tool performs multi-objective optimization for MCPM layouts with a significant speed up compared to FEM simulations with a good accuracy

RESEARCH EXPERIENCE

Energy-Efficient Electronics and Design Automation Lab
Graduate Research Assistant
Research Topic: Generic, scalable, and efficient layout engine development for heterogeneous and 3-D Multi-Chip-Power-Module. This layout engine is the core of a CAD software (PowerSynth), which has been using for 2D/2.5D/3D power module layout synthesis and optimization.

SELECTED PUBLICATIONS

Imam Al Razi et. al., PowerSynth Design Automation Flow for Hierarchical and Heterogeneous 2.5D Multi-Chip Power Modules, (accepted) IEEE Transactions on Power Electronics, 2021.
Imam Al Razi et. al., "Physical Design Automation for High-Density 3D Power Module Layout Synthesis and Optimization",in ECCE, Oct 2020.
Imam Al Razi et. al., "Hierarchical Layout Synthesis and Design Automation for 2.5D Heterogeneous Multi-Chip Power Modules",in ECCE, Oct 2019.
Tristan Evans, Quang Le, Shilpi Mukherjee, **Imam Al Razi**, Tom Vrotsos, Yarui Peng, and H. Alan Mantooth, "Powersynth: A Power Module Layout Generation Tool", IEEE Transactions on Power Electronics, vol. 34, no. 6, pp. 50635078, Jun 2019, **Highlighted Paper**.
Imam Al Razi et. al., "Constraint-Aware Algorithms for Heterogeneous Power Module Layout Synthesis and Optimization in PowerSynth", in WIPDA, pp. 323-330, Oct 2018.

SELECTED COURSEWORK

Introduction to Deep Learning, Machine Learning, Database Management Systems, Algorithms, Computer Architecture, Embedded Systems, Programming Challenges, Advanced Digital Design, Design Automation of VLSI Circuits and Systems.