Mohammad Nasim Imtiaz Khan

10 Vairo Blvd, Apt 21A, State College, Pennsylvania-16803. Phone No.: +1-813-204-0617.
Email: muk392@psu.edu. LinkedIn: bd.linkedin.com/in/md-nasim-imtiaz-khan-9889a079

Research Interest:

My Research is focused towards security and privacy issues of emerging Non-Volatile Memory.

Education:

- Ph.D. in EE, Pennsylvania State University, (Fall 2016-current).
- Ph.D. in CSE, University of South Florida, (Spring 2016 – Fall 2016), GPA of 4.0/4.0. (transfer)
- B.Sc. in EEE, Bangladesh University of Engineering and Technology, (June 2014), GPA 3.85/4.00.

US Patent:

- Strap Region Exploit Mu-Metal Nano-Shielding from Magnetic Field Attack on STTRAM *(pending)*

Research Accomplishment:

h-index :2 [Google Scholar link]

Journal(s):

- Md. Ziaur Rahman Khan, Md. Zadid Khan, Mohammad Nasim Imtiaz Khan, et. Al., "*Maximum Power Point Tracking for Photovoltaic Array Using Parabolic Interpolation*," *IJIEE*, 2014.

Conference Paper(s):

- Mohammad Nasim Imtiaz Khan, et. al, "*Novel Magnetic Burn-In for Retention Testing of STTRAM*", Accepted in DATE, 2017. (*Acceptance Rate 24%*)
- Swaroop Ghosh, Mohammad Nasim Imtiaz Khan, et. al., *"Security and privacy threats to on-chip non-volatile memories and countermeasures",* ICCAD, 2017. (*Acceptance Rate 25%*)
- Asmit De, Mohammad Nasim Imtiaz Khan, et. al, *"Attack resilient architecture to replace embedded Flash with STTRAM in homogeneous IoTs", submitted for review.*
- Mohammad Nasim Imtiaz Khan, et. al., "*A low cost optical sensor based heart rate monitoring system*," *ICIEV,* 2013. (*Acceptance Rate 42%*)
- Mohammad Nasim Imtiaz Khan, et. al., "*Modelling and Simulation of an Efficient Charge Controller for Photovoltaic System with Maximum Power Point Tracking*", ICDRET, 2014.

International Awards:

- **Luna Worldwide Award** (placed 3rd) and **Lunar Regolith Mining** (placed 15th) in NASA 4th Annual Mining Competition, 2013 as a member of *The BUET MechaTrons*.
- **Best Presenter Award** in IEEE International Conference on Informatics, Electronics & Visions (ICIEV), 2013.
- 1st in Technical Training Program (TTP), Cairo, Egypt (May, 2015) with 96.1%.

Academic Honors:

- **Milton and Albertha Langdon Memorial Graduate Fellowship** for 2016-2017 academic year.
- **Richard Newton Young Fellow** award at DAC, 2016.
- **Dean's List Award** for Excellence in academic performance throughout all four years of B. Sc.
- **University Merit Scholarship** in 4 terms out of 8.
- **Admission Test Excellency Scholarship,** rank 72.
- **Dhaka Education Board Scholarship** for Excellent result in Higher Secondary Certificate, Dhaka Board.
- 2nd in the Physics Olympiad, organized by Notre Dame Science Club, 17th August 2007.

Research Projects:

- Attack resilient architecture to replace embedded Flash with STTRAM in homogeneous IoTs - The information redundancy present in a homogeneous peer-to-peer connected IoT network is exploited to restore the corrupted memory of any IoT node after a magnetic attack.
- Novel Magnetic Burn-In for Retention Testing of STTRAM - Proposed novel magnetic burn-in test which can be implemented with minimal changes in the existing test flow to enable STTRAM retention testing at short test time.
- Strap Region Exploit Mu-Metal Nano-Shielding from Magnetic Field Attack on STTRAM - Proposed a low-overhead solution for protection against magnetic field attack which exploits structure of STTRAM tape layout to bypass the magnetic flux through mu-metal.
- Multi-Bit Read and Write Methodologies for Diode-STTRAM Crossbar Array - Proposed a technique to perform multi-bit read and write in a diode-STTRAM crossbar array.
- Undergrad Thesis: "Modeling of Graphene Nanoribbon Field Effect Transistor"- GNRFETs were constructed using both the chirality and the width adjustment for tuning the band structure and the modeled FET was used to model basic logic gates.

Work Experience

- Research Assistant, School of Electrical Engineering and Computer Science, PSU (Fall 2016)
- Research Assistant, Department of Computer Science and Engineering, USF (Spring 2016 – Summer 2016)
- Lecturer, Electrical and Electronic Engineering, Daffodil International University (Jun 2015- Dec 2015)
- Associate Maintenance Professional-Halliburton Int. Inc., Bangladesh (Sept 2014-Jun 2015)
- Internship at Samsung R&D Institute Bangladesh – SRBD (Oct 2013- Jan 2014)

CLASS PROJECTS

- Design and implementation of a Heart Beat Counter - Sensing blood rush in vein using phototransistor, signal processing to calculate beat per minute (BPM).
- Design circuit and layout of n-bit comparator using Cadence Virtuoso software.
- Design and simulation of a 8-bit Micro-computer - Able to perform 16 mathematical operation.
- Design and implementation of hardware based 'Breakout' using Basic latch-gate.
- Analysis of Acoustic Characteristics of a class room- Attenuation profile, delay profile, reverberation characteristics and noise level.
- Design of a Chess Playing Robot with Artificial Intelligence.
- Designed and implemented Object Detecting Voice Controlled Robot and Maze solving Robot.
- Design and implementation of Autonomous Mining Robot- Can dig and carry up to 66 lbs. lunar regolith.

COMPUTER SKILLS

Programming Language	: C/C++, Python, Verilog A, VHDL, Perl
Numerical Analysis	: MATLAB, Simulink
Electric Circuit Simulation	: Multi-Sim, Orcad, Proteus, HSPICE, Quartus, PSAF
Device Design Software	: Cadence Virtuoso, Sentaurus, Microwind

VOLUNTARY & CO-CURRICULAR ACTIVITIES

- Member of *SHIKKHA*, a voluntary organization for betterment of education system in Bangladesh.
- IEEE Power Energy Society (PES) voluntary project to develop an open source design of an efficient Solar Charge Controller, 2013.
- Worked as an organizer for 2nd BCC International Robotics Challenge (IRC) 2013, Bangladesh.