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Abdullah-Al-Amin

Mechanical Engineering PhD Candidate
Expertise: non-linear Finite Element, Computational Mechanics

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Experience

- 8/2013 ~ Current — **Graduate Research Assistant,** Computational Physics Group, **Case Western Reserve University**
  - *First of its kind conduction cooled 1.5 T MRI Magnet system design using ANSYS APDL, Finite Element, Solid Mechanics, Computational Mechanics, Matlab, Finite Difference*
- 8/2010 ~ 8/2013 — **Graduate Research Assistant,** MEMS Lab, **University of Akron**
  - *Elevated temperature (110° C) and low vacuum (24 in Hg) microgripper design and fabrication*
  - *High throughput (1000 µL/min) double spiral microchannel design and fabrication for particle separation.*
- 10/2009 ~ 8/2010 — **Lecturer,** Department of Textile Engineering, **Green University of Bangladesh**
  - *Lecture a class of 30 students, design course, write, proctor and grade exams.*
- 2/2010~5/2010 — **Adjunct Lecturer,** Department of Engineering, **College of Aviation Technology**
  - *Lecture a class of 20 students, design course, write, proctor and grade exams.*

Education

- 8/2013~Current — **Doctor of Philosophy,** Mechanical & Aerospace Engineering, (August, 2017), **Case Western Reserve University**
  GPA: 3.42/4.0
  Dissertation: "Multiscale Multiphysics Stress-Strain Modeling for MgB2 Based Conduction Cooled 1.5 T MRI Magnet System."
- 8/2013 — **Master of Science,** Mechanical Engineering, **University of Akron**
  GPA: 3.77/4.0 (Major: 3.92/4.0)
  Dissertation: "High Throughput Particle Separation Using Differential Fermat Spiral Microchannel with Variable Channel Width."
- 03/2009 — **Bachelor of Science,** Mechanical Engineering, **Bangladesh University of Engineering & Technology**
  CGPA: 3.44/4.0, (Major: 3.63/4.0) Class Rank: 31/117 (Top 30% of class)
  Dissertation: "Design, Improvement, Modification & Fabrication of Mechanisms and Control Systems of Robots for ABU ROBOCON."

Selected Awards

- Travel Grants: *Applied Superconductivity Conference* (September 2016), 22nd & 23rd *ISMRM* Educational Stipend; Toronto, May 2015, Singapore, May 2016. *Graduate Student Travel Award*, Case Western Reserve University, 2016. *Sweden-Bangladesh travel grant*, Dhaka, Bangladesh, December 2011.
- University Blazer, BUET, August 2008 (Representation of country at international robotics competition level.)
- Technological Scholarship, Govt. of Peoples Republic of Bangladesh, 2004~2008 (Award of excellence in engineering education)

Research Projects (Selected)

- **1.5 Conduction Cooled MRI Magnet Design** (2013-present)**.** First of its kind MgB_2 based MRI magnet system.
- **Gout Instrument Device using Magneto Optical Detection** (2015-present). Patent submitted technology for detection of gout crystal. Tools used: Lathe machine, laser and photo-diode, trans-impedance amplifier,
- **Fermat Spiral Microparticle Separation Device** (2011-2013) High throughput (1000 µL/min) particle separation device. Photolithography, Plasma Etching, Micropatterning, Experiment Design

Language & Technologies

- **Software:** ANSYS APDL & Workbench, Creo Parametric/*Pro-E*, SolidWorks, AutoCAD, CATIA V5, ABAQUS, Comsol, ICEM, Fortran, C, Java, HTML & CSS, XML, My SQL, Matlab, MathCAD, Microcontroller programming.
- **Microfabrication:** Clean Room (Class 1000), Electrospinning, Plasma Bonding, Electroplating, four axis CNC Milling, Milling Machine, Lathe Machine, Bench Drilling, Mechanical wrenching.

Publications: Journal Articles: 7, Conference: 4, Patent: 1 (submitted) with 26 citations.

Leadership: Mentor, (mMAS: voluntary research group); **Founder, Developer, and Writer,** (www.buetech.com) **Founder and Idea lead,** youtube.com/Obodharon**,** a learning platform for children. **Senator,** College of Engineering, University of Akron (2013), **Treasurer & Web Admin,** Bangladesh Student Association, University of Akron (2011-2013)

References: Professor Michael Martens & Professor Ozan Akkus (Case Western Reserve University)