

Mohammad Abu Hasan Khondoker
Graduate Research & Teaching Assistant
Department of Mechanical Engineering, University of Alberta, Edmonton
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Research Interest

3D printing, Fused Deposition Modelling, Liquid metal alloys, Polymer microfabrication, Cellulose composites, Smart/piezoelectric materials, Inkjet printing, Sensors/actuators

Educational Qualifications

- Jan'14 – Present PhD in Mechanical Engineering (Ongoing)
University of Alberta, Edmonton, AB, Canada
Project title: Development of Multi-Material Smart Extruder for Fused Deposition Modelling
CGPA: 3.80 out of 4.00
- Aug'11 – Aug'13 MEng in Mechanical Engineering
INHA University, Incheon, South Korea
Dissertation title: *Synthesis and Characterization of Conductive Silver Ink for Inkjet Printing on Cellulose Film*
CGPA: 4.38 out of 4.50
- Dec'04 – Oct'09 BSc in Industrial and Production Engineering
Bangladesh University of Engineering & Technology, Dhaka, Bangladesh
Thesis title: *Characterization of the Mechanical Properties of CNT-Based Composites for Square RVE*
CGPA: 3.43 out of 4.00

Research Experiences

- Jan'14 – Present Graduate Research Assistant
Department of Mechanical Engineering, University of Alberta, Edmonton
Research Areas: Development of Multi-Material Smart Extruder for Fused Deposition Modelling
Supervisor: Dr. Dan Sameoto, Associate Professor

Aug'11 – Jul'13 Graduate Research Assistant, Center for Electro-Active Paper Actuator
Department of Mechanical Engineering, INHA University, Incheon, Korea
Research Areas: Cellulose based nanocomposites, Ink-jet printing
Supervisor: Dr. Jaehwan Kim, Professor

Teaching Experiences

Graduate Teaching Assistant, Department of Mechanical Engineering, University of Alberta

- Winter 2017 : MecE 230 Introduction to Thermo-Fluid Sciences
- Fall 2016 : MecE 230 Introduction to Thermo-Fluid Sciences
- Winter 2016 : MecE 230 Introduction to Thermo-Fluid Sciences
- Fall 2015 : MecE 230 Introduction to Thermo-Fluid Sciences
- Winter 2015 : En Ph 130 Mechanics

Graduate Teaching Assistant, Department of Mechanical Engineering, Inha University, Korea

- Spring 2013 : ME 332 Heat Transfer
- Fall 2012 : ME 332 Heat Transfer
- Spring 2012 : ME 356 Manufacturing Processes

Mentoring / Supervising Experiences

Jan'17 – Apr'17 Supervising a student under Engineering Cooperative (Co-op) program
Supervisee: Nadia Baheri, 2nd year undergrad student, University of Alberta

May'15 – Aug'15 Supervised a student under Engineering Co-op program
Supervisee: Kelly Briske, 2nd year undergrad student, University of Alberta

Awards / Scholarships

May'16 – Apr'18 Alexander Graham Bell Canada Graduate Scholarship-Doctoral (CGS D),
Natural Sciences and Engineering Research Council (NSERC), University
of Alberta, Edmonton, AB, Canada

May'16 – Apr'18 President's Doctoral Prize of Distinction (PDPD), Faculty of Graduate
Studies and Research, University of Alberta, Edmonton, AB, Canada

May'14 – Apr'17 Alberta Innovates Graduate Student Scholarship, Faculty of Graduate
Studies and Research, University of Alberta, Edmonton, AB, Canada

2013 – 2016	International Dean's Scholarship, College of Graduate Studies and Research, University of Saskatchewan, Saskatoon, SK, Canada (Declined)
2013 – 2014	Saskatchewan Innovation and Opportunity Scholarship, on behalf of the provincial government and the University of Saskatchewan (Declined)
2013 – 2014	Academic Achievement Scholarship, Toulouse Graduate School, University of North Texas, Denton, TX, United States (Declined)
Aug'11 – Jul'13	International Jungseok Scholarship, Graduate School, INHA University, Incheon, South Korea
Dec'04 – Oct'09	Technical Scholarship, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh

Professional Experiences

Aug'10 – Aug'11	Design Engineer – Mechanical, R&D Energypac Engineering Limited, Dhaka, Bangladesh <ul style="list-style-type: none"> ▪ To conduct research into the feasibility, design, operation and performance of mechanisms and mechanical components of transformers, sub-stations ▪ To plan and manage work orders of different projects, and prepare material, cost and timing estimates, reports and mechanical design specifications for power transformer, distribution transformer, LT and PFI panels etc. ▪ To test and analyze dynamics, vibrations, heating losses and efficiency of mechanical components of the substation systems.
Aug'09 – Aug'10	Mechanical Maintenance Engineer Mymun Textiles Limited, DBL Group, Dhaka, Bangladesh <ul style="list-style-type: none"> ▪ To test and analyze dynamics, vibrations, heating losses and efficiency of mechanical components of the dyeing & washing machines under preventive maintenance. ▪ To develop overall maintenance plans with standards, schedules and programs and providing guidance to industrial maintenance crews of production floor.

- To supervise technicians, maintenance crews and reviewing and approving maintenance schedules, calculations and cost estimates. Supervised a group of 10 crews during mechanical maintenance operations.

Extra-curricular / Voluntary Activities

- Sep'16 – Aug'17 President, Michener Park Residents' Association (MPRA), University of Alberta, Edmonton, AB, Canada. (Elected position)
- Leading in hosting social events like summer BBQ, Parade of Nations, Halloween party for kids, Christmas and new year party etc. and coordinating with residents to resolve any issue within the residence area.
 - Attending and presenting residents' vocal in monthly meeting between MPRA and Residence Service of the University of Alberta.
- Sep'15 – Aug'16 VP – Events, Mechanical Engineering Graduate Students' Association, University of Alberta, Edmonton, AB, Canada. (Elected position)
- Coordinating with other executive in hosting events like academic speaker series, workshops, field trips, alumni mixer, movie nights, BBQ and potluck parties, staff appreciation day, career fair etc.
 - Obtaining event approval, preparing the venue and arranging each & every necessary resource for all the events organized by MEGSA
- Sep'15 – Aug'16 Publication Coordinator, Michener Park Residents' Association (MPRA), University of Alberta, Edmonton, AB, Canada. (Elected position)
- Obtaining event approval for all the events organized by MPRA
 - Advertising and distributing news of upcoming events through Residence Services bi-weekly newsletter.
- Jan'09 – Oct'09 Finance Secretary, Association of Industrial & Production Engineers, Bangladesh University of Engineering & Technology, Dhaka
- To prepare annual financial budget, and maintain financial records of cost of event organization and external sponsorship

Technical Skills

Engineering Graphics: AutoCAD, SolidWorks, CATIA

Engineering Analyses: ANSYS, MATLAB, COMSOL, LabVIEW

Processing Software: Microsoft Office, Adobe Photoshop
Programming: C-Language, Arduino IDE
Scientific Analyses: TGA, XRD, SEM, AFM, XPS

Refereed Journal Articles

1. **Khondoker, M. A. H.** and Sameoto, D. Fabrication methods and applications of microstructured gallium based liquid metal alloys. *Smart Materials and Structures*. **25**: 093001 (PhD work)
2. Mun, S., **Khondoker, M. A. H.**, Kafy, A., Mohiuddin, M. and Kim, J., (2014) Inkjet printing of customized silver ink for cellulose electro active paper. *Journal of the Korean Society for Precision Engineering*. **31**: 737-742 (Master's work)
3. **Khondoker, M. A. H.**, Mun S. C. and Kim, J. (2013) Synthesis and characterization of conductive silver ink for electrode printing on cellulose film. *Applied Physics A*. **112**: 411-418 (Master's work)
4. **Khondoker, M. A. H.**, Yang, S. Y., Mun, S. C. and Kim, J. (2012) Flexible and conductive ITO electrode made on cellulose film by spin-coating. *Synthetic Metals*. **162**: 1972–1976 (Master's work)
5. Kim, J., Mun, S. C., Ko, H –U., Kim, K –B., **Khondoker, M. A. H.** and Zhai, L. (2012) Review of microwave assisted manufacturing technologies. *International Journal of Precision Engineering and Manufacturing*. **13**: 2263-2272 (Master's work)

Refereed Conference Proceedings

1. **Khondoker, M. A. H.**, and Sameoto, D. (2016) Design and Characterization of a Bi-material Co-extruder for Fused Deposition Modeling. *Proc. ASME IMECE 2016*. Phoenix, AZ, USA, November 11 – 17, (PhD work)
2. **Khondoker, M. A. H.**, Mun, S. and Kim, J. (2013) Particle based conductive silver ink customized for ink jet printing on cellulose electro-active paper. *Proc. of SPIE*. 8691Q. Bellingham, WA, USA (Master's work)

3. Maniruzzaman, M., Mahadeva, S. K., **Khondoker, A. H.** and Kim, J. (2012) Titanium dioxide-cellulose hybrid nanocomposite based conductometric glucose biosensor. *Proc. of SPIE 8344J*. San Diego, CA, USA (Master's work)
4. Kabir, G., Hasin, M. A. A. and **Khondokar, M. A. H.** (2011) Fuzzy analytical hierarchy process for multicriteria inventory classification. Proceedings of the International Conference on Mechanical Engineering. RT-013. Dhaka, Bangladesh (While working for Energypac Engineering Limited)

Other Non-Refereed Contributions

Oral presentation:

1. Kim, J., Ko, H –U., **Khondoker, A. H.** and Maniruzzaman, M. (2012) Disposable biosensors made with cellulose and nanomaterials hybrid composites. SPIE International Conference on Nanosystems in Engineering and Medicine. 8548-62, 10-12 September, Incheon, Korea

Poster presentation:

1. **Khondoker, M. A. H.**, Kafy, A., Mohiuddin, M., Kim, J. H. and Kim, J. (2013) Conductive silver ink customized for inkjet printing on cellulose electro-active paper, Korean Society for Precision Engineering. 28-30 June, Jeju Island, Korea

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