Abdullah Al Amin, Ph.D.

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github: https://github.com/neoceph, linkedin: https://www.linkedin.com/in/neoceph/
scholar: https://scholar.google.com/citations?user=dkLvoWwAAAAJ&hl=en&oi=sra

RESEARCH INTERESTS

- Additive Manufacturing
  - Laser Powder Bed Fusion Process Modeling
  - AM Part Qualification and Quantification
- Magnetic Devices
  - Magnetic Resonance Imaging (MRI) background magnet
  - Bio crystal detection devices
- Energy & Materials
  - Metal Matrix Composites, Superconducting Wires, Fusion Energy
  - Organic Solar Cells
- Computational Science
  - Atomic, molecular, and continuum modeling of solar cell, medical imaging device, additively manufactured parts
  - Multi-physics Modeling (magnetic, electric, thermal, and mechanical)
  - Exa-scale High-Performance Computation, GPU Accelerated Computation
  - Scientific Machine Learning (Deep Neural Network for PDE approximation)

EDUCATION

Case Western Reserve University — Mechanical Engineering, Ph.D., 2018
Thesis: Multiscale Multiphysics Thermo-Mechanical Modeling of an MgB_2 Based Conduction Cooled MRI Magnet System.
Adviser: Michael Martens and Ozan Akkus

The University of Akron — Mechanical Engineering, M.S., 2014
Thesis: High throughput particle separation using differential Fermat spiral microchannel with variable channel width.
Adviser: Jiang Zhe

Bangladesh University of Engineering and Technology — Mechanical Engineering, B.S., 2009
Thesis: Design, Improvement, Modification & Fabrication of Mechanisms and Control Systems of Robots for ABU ROBOCON
Adviser: Maglub Al Nur

APPOINTMENTS

Assistant Professor, Department of Mechanical and Aerospace Engineering, University of Dayton, OH — Aug 2023 ~ Present

Postdoctoral Fellow, Northwestern University, Evanston, IL — Feb 2021 ~ Aug 2023
Adviser: Wing Kam Liu
Project: Development of an FVM based high fidelity multiphysics laser powder bed fusion solver.

Research Engineer, Bridgestone Americas Technical Center, Akron OH. — Jan 2018 ~ Jan 2021
Relevant Projects:

- Development of a hybrid analytical-FEA tire analysis framework for cornering and braking.
- Composite polymer material modeling.

Graduate Research Assistant, Case Western Reserve University, Cleveland, OH   Aug 2013 ~ Dec 2017
Project: Development of a multiscale multiphysics model of a full body 1.5 T MRI main magnet.

Graduate Research Assistant, The University of Akron, Akron, OH   Aug 2010 ~ Jul 2013
Relevant Projects:

- Characterization of a high temperature, high vacuum soft microgripper.
- Development of a high throughput micro particle separation device.

TEACHING EXPERIENCE

Assistant Director   Fall '22 ~ Summer '23

Predictive Science and Engineering Design (PSE&D), Northwestern University

A Northwestern University fellowship program where fellows are selected from a pool of applicants and trained with concurrent state-of-the-art computational modeling techniques through three quarters (Fall, Winter, Spring) of courses.

Guest Lecturer   Summer '22, '21
Northwestern university   Spring '21

- Summer Mechanistic Data Science
- Advance FEM II: Materials and reduced order models

Graduate Teaching Assistant   Fall '14
Case Western Reserve University   Fall '15
          Spring '16

- Musculoskeletal Biomechanics
- Mechanical Engineering Measurements Laboratory
- Senior Design Project

Graduate Teaching Assistant   Aug '11 ~ Jul '13
The University of Akron

- Mechanical Engineering Drawing
- Tools for Mechanical Engineering Lab

Lecturer   Jun '10 ~ Aug '10
Green University of Bangladesh

- Introduction to Mechanical Engineering
- Machine Ergonomics
- Mechanical Engineering Drawing

Lecturer   Feb '10 ~ May '10
College of Aviation Technology, Bangladesh

- Introduction to Mechanical Engineering

Adjunct Lecturer   Oct '09 ~ May '10
Green University of Bangladesh

- Mechanical Engineering Drawing

HONORS AND AWARDS

1. Participant, NASA GPU Hackathon 2022. (September 19, 26-28). Only nine teams selected worldwide.
2. 1st Place, NIST-AMBench, CHAL-AMB2022-03-PSCR: Best modeling results predicting the cooling rate immediately following solidification at specified locations within 2D scan tracks on IN718, August 2022.

3. 1st Place for NIST-AMBench, CHAL-AMB2022-03-PMPG: Best modeling results predicting the melt pool geometry at specified locations within 2D laser scan tracks on IN718, August 2022.
4. 1st Place for NIST-AMBench, CHAL-A-AMB2022-01-Scan-MWD & ASR Scan Geometry: Best modeling results predicting the melt pool geometry for a scanned laser weld, August 2022.
5. 2nd Place for NIST-AMBench, CHAL-AMB2022-03-TTAM: Modeling results predicting the time above melting temperature for individual laser tracks on IN718 with different processing conditions, August 2022.
6. Fellow, NSF CMMI Game Changer Academies for Advancing Research Innovation, December 2021.
7. NSF Fellow, Mechanistic Machine Learning and Digital Twins for Computational Science, Engineering & Technology (July 30, 2021).
8. Contest Runner-Up, Superconductivity News Forum (SNF), Applied Superconductivity Conference (October 2016)
9. Financial Assistance, Applied Superconductivity Conference, Denver, Colorado; USA (September 2016)
10. Fellowship, MIT Professional Education, Multiscale Material Design, Boston, USA (Summer 2016) [Covered 50% of the Registration]
11. Graduate Student Travel Award, Graduate School, Case Western Reserve University (May 2016)
12. ISMRM Educational Stipend, 23rd annual meeting of ISMRM, Singapore City, Singapore (May 2016)
13. ISMRM Educational Stipend, 22nd annual meeting of ISMRM, Toronto, Canada (May 2015)
14. Sweden Bangladesh Travel Grant, Government of Bangladesh (December 2011)
15. University Blazer, Award recognizing participation to ABU Robocon 2008, Bangladesh University of Engineering and Technology, Dhaka. (September 2008)
16. Merit Scholarship, Government of Bangladesh (2004 – 2008)

VOLUNTEER SERVICES

1. Session Chair, 'Materials 1', 49th Dayton-Cincinnati Aerospace Sciences Symposium, Dayton, OH, March 5, 2024.
2. Panelist, National Science Foundation, Communications, Circuits, and Sensing-Systems (CCSS) (November, 2023)
3. Reviewer, IEEE Transaction on Industrial Informatics [IF: 12.3] (March 2024-Present)
4. Reviewer, Journal of Manufacturing Process [IF: 6.2] (August 2023-Present)
5. Reviewer, Superconductor Science and Technology [IF: 3.6] (October 2022-Present)
6. Reviewer, Computational Mechanics [IF: 4.1] (March 2021 – Present)
7. Reviewer, Applied Superconductivity and Electromagnetic Devices [IF: 1.949] (March 2021 – Present)
8. Reviewer, Journal of Mechanical Engineering Science, [IF: 1.015] (March 2021– Present)
9. Reviewer, IEEE Transactions of Applied Superconductivity, [IF: 1.324] (November 2019 – Present)
10. Reviewer, Society of Automotive Engineering (October 2019 – October 2020)
11. Award Committee, Tire Society (August 2018 – October 2020)
12. Conference Committee, Tire Society (July 2018 – May 2022)
13. Reviewer, Composite Structures [IF: 6.3] (January 2018 – Present)

PROFESSIONAL MEMBERSHIP

- The Minerals, Metals & Materials Society (2022 - Present)
- Tire Society (2018 – 2021)

- Society of Automotive Engineering (2018)
- United States Association for Computational Mechanics (2018)
- IEEE Council of Superconductivity (2016 – 2017)
- International Society of Magnetic Resonance in Medicine (2015-2016)

JOURNAL PUBLICATIONS

J1. Li, Y., Mojumder S., Lu Y., Amin A. A., Guo J., Xie X., Chen W., Wagner G. J., Cao J., Liu W. K., "Statistical Parameterized Physics-Based Machine Learning Digital Shadow Models for Laser Powder Bed Fusion Process" Additive Manufacturing, 5 May, 2024

J2. Amin A. A, Li Y., Lu Y., Xie X., Gan Z., Mojumder S., Wagner G.J., Liu W. K., "Physics guided heat source for quantitative prediction of IN718 laser additive manufacturing processes" npj computational materials, 19 February, 2024.

J3. Mojumder S., Gan Z, Amin A. A., Liu W. K., "Linking Process Parameters with Lack-of-Fusion Porosity for Metal Additive Manufacturing," Additive Manufacturing, Volume 68, April 2023.

J4. Huang H., Mojumder S., Suarez D., Amin A. A, Fleming M., Liu W. K., "Knowledge database creation for design of polymer matrix composite" Computational Material Science, July 30, 2022.

J5. Lu Y, Li H, Saha S, Mojumder S, Amin A. A., Suarez D, Liu Y, Qian D, Liu WK, "Reduced Order Machine Learning Finite Element Methods: Concept, Implementation, and Future Applications", Computer Modeling in Engineering & Sciences, September 14, 2021

J6. Islam M, Thakur MSH, Mojumder S, Amin A. A., Islam MM, "Mechanical and Vibrational Characteristics of Functionally Graded Cu-Ni Nanowire: A Molecular Dynamics Study", Composite Part B: Engineering, 108212

J7. Sultana N, Amin A. A., Metin D, Gaston N, "Unveiling the structures and electronic properties of CH 3 NH 3 PbI 3 interfaces with TiO_2, ZnO, and SnO_2: a first-principles study", Journal of Materials Science, p. 1-15, August 2019.

J8. Poole C, Amin A. A., Baig T, Martens M, "Mechanical analysis of an MgB2 1.5 T MRI main magnet protected using Coupling Loss Induced Quench", Cryogenics, Volume 100, p. 18-27, June 2019.

J9. Amin A. A., Sabri L A, Poole C R, Baig T N, Deissler R J, Rindfleisch M, Tomsic M, Doll D, Akkus O, Martens M, "Computational homogenization of the elastic and thermal properties of superconducting composite MgB_2 wire" Composite Structures, Volume 188, p. 313-329, March 2018.

J10. Deissler R J, Baig T, Charles P, Amin A. A., Doll D, Tomsic M, and Martens, "A Computational Study to Find an Optimal RRR Value for a 1.5 T Persistent-Mode Conduction-Cooled MgB_2 MRI Magnet from a Quench Protection Point of View.", IEEE Trans. Appl. Supercond, Volume 99, Issue 4, June 2017

J11. Baig T, Amin A. A., Deissler R J, Sabri L, Poole C, Brown R W, Tomsic M, Doll D, Rindfleisch M, Peng X and others, "Conceptual designs of conduction cooled MgB_2 magnets for 1.5 and 3.0 T full body MRI systems.", Superconductor Science and Technology, Volume 30, Issue 4, March 2017

J12. Amin A. A., Baig T N, Deissler R J, Sabri L A, Doll D, Tomsic M, Akkus O and Martens M A, "Mechanical Analysis of MgB_2 Based Full Body MRI Coils Under Different Winding Conditions.", IEEE Trans. Appl. Supercond, Volume 27, Issue 4, June 2017

J13. Deissler R J, Baig T, Poole C, Amin A. A., Doll D, Tomsic M and Martens M, "Numerical simulation of quench protection for a 1.5 T persistent mode MgB_2 conduction-cooled MRI magnet.", Superconductor Science and Technology, Volume 30, Issue 2, December 2016

J14. Amin A. A., Baig T, Deissler R J, Yao Z, Tomsic M, Doll D, Akkus O and Michael Martens, "A multiscale and multiphysics model of strain development in a 1.5 T MRI magnet designed with 36 filaments composite MgB_2 superconducting wire.", Superconductor Science and Technology, Volume 29, Issue 5, March 2016.

J15. Mojumder S, <u>Amin A. A.</u>, and Islam M M, "Mechanical properties of stanene under uniaxial and biaxial loading: A molecular dynamics study," Journal of Applied Physics, Volume 118, Issue 12, September 2015

J16. <u>Amin A. A.</u>, Jagtiani A, Vasudev A, Hu J, and Zhe J, "Soft microgripping using ionic liquids for high temperature and vacuum applications.", Journal of Micromechanics and Microengineering, Volume 21, Issue 12, December 2011

JOURNAL PUBLICATIONS (Under Review)

J1. Yangfan Li, Ye Lu, <u>Abdullah Al Amin</u>, and Wing Kam Liu, Stochastic additive manufacturing simulations: from experimental data to surface roughness and porosity predictions. Under review with Additive Manufacturing, (https://arxiv.org/pdf/2208.02907.pdf)

JOURNAL PUBLICATIONS (In Preparation)

J1. <u>Abdullah Al Amin</u>, Satyajit Mojumder, Wing Kam Liu, "An open-source GPU accelerated high fidelity multiphysics FVM framework for additive manufacturing simulations." (In Preparation)

J2. <u>Abdullah Al Amin</u>, Yangfan Li, Satyajit Mojumder, Wing Kam Liu, "Getting the heat source right for Laser Powder Bed fusion additive manufacturing simulations." (In Preparation)

CONFERENCE PROCEEDINGS

C1. <u>AA Amin</u>, R Lowe, N Sultana, W Liu, "Physics-Guided Heat Source for Transient Laser Absorptance Prediction In Metal Additive Manufacturing" 16th World Congress on Computational Mechanics and 4th Pan American Congress on Computational Mechanics, July 21-26, 2024, Vancouver Convention Centre, Vancouver, British Columbia, Canada

C2. <u>AA Amin</u>, R Lowe, N Sultana, "High-Fidelity Melt Pool Prediction with a Physics-Guided Heat Source for Accelerated Laser Powder Bed Additive Manufacturing Simulations", 49th Dayton-Cincinnati Aerospace Sciences Symposium, Dayton, OH, March 5th, 2024.

C3. <u>AA Amin</u>, S Mojumder, Y Li, X Xie, W Liu, "Physics Augmented Stochastic Simulation (PASS) for Accelerated Computation of Laser Absorption in Powder Bed Fusion Additive Manufacturing", 17th USNCCM, Albuquerque, NM, July 23-27, 2023.

C4. Y Li, Y. Lu, <u>AA Amin</u>, X Xie, J Guo, WK Liu, "A Stochastic Additive Manufacturing Simulation Method for Surface Roughness and Porosity Prediction", 17th USNCCM, Albuquerque, NM, July 23-27, 2023.

C5. X Xie, <u>AA Amin</u>, Y Li, J Guo, N Kizer, L Mutswatiwa2, L Katch, C Kube, WK Liu, "Real-Time Keyhole Porosity Detection in Metal Additive Manufacturing With In-Situ Ultrasound and X-Ray Imaging", 17th USNCCM, Albuquerque, NM, July 23-27, 2023.

C6. S Mojumder, H Huang, D Suarez, <u>AA Amin</u>, WK Liu, "Mechanistic data science approach for reinforced polymer composites design" Mechanistic Machine Learning and Digital Twins for Computational Science, Engineering & Technology, San Diego, CA, September 26-29, 2021.

C7. H Li, <u>AA Amin</u>, Y Lu, WK Liu, Advances and Applications of Mechanistic Machine Learning, Reduced-order and Data-driven Analyses, 16th USNCCM 2021, Chicago, IL July 25-29, 2021.

C8. <u>AA Amin</u>, B Bhusal, TN Baig, RJ Deissler, L Sabri, O Akkus, and MA Martens, "A comparative study of coil winding techniques of a full body 1.5 T MgB_2 based MRI magnets.", ISMRM 25th annual meeting & exhibition, Hawaii, USA, April 2017

C9. <u>AA Amin</u>, TN Baig, RJ Deissler, L Sabri, D Doll, M Tomsic, O Akkus and MA Marten, "Effect of Mechanical Support Conditions of Winding on the Strain Development of a Composite MgB_2 Based Full Body, MRI Coil.", Applied Superconductivity Conference, Denver, Colorado, USA, October 2016 [Superconductivity News Forum Contest Runner Up, SNF Contest for Best ASC 2016 Contributed Preprints – PART II, 2016]

C10. RJ Deissler, TN Baig, CR Poole, <u>AA Amin</u>, D Doll, M Tomsic, M Martens, "A Computational Study to Find an Optimal RRR Value for a 1.5 T Persistent-Mode Conduction-Cooled MgB_2 MRI Magnet

from a Quench Protection Point of View.", Applied Superconductivity Conference, Denver, Colorado, USA, October 2016

C11. AA Amin, B Bhusal, TN Baig, RJ Deissler, L Sabri, O Akkus, and MA Martens, "Variation in strain characteristics for multiscale multiphysics models of a 1.5T conduction cooled MRI system based on a 36 filament MgB_2 composite wire.", ISMRM 24th annual meeting & exhibition, Singapore City, Singapore, May 2016

C12. AA Amin, TN Baig, Z. Yao and MA Martens, "Stress and Strain Sensitivity Study of 1.5T Conduction Cooled MgB_2 Magnet Design.", ISMRM 23rd annual meeting & exhibition, Toronto, Canada, May 2015

DEVELOPED SOFTWARE PROGRAMS

1. AM-CFD: An FVM based Additive Manufacturing Part Modeling Program (https://github.com/neoceph/AM-CFD)
2. Tire F&M: Hybrid analytical-FEM tire force analysis program.
3. M S H Thakur, M Islam, A Amin, S Mojumder, M M Islam (2019), "LAMMPS Input Structure Generator for Functionally Graded Materials (FGM)," https://nanohub.org/resources/fgmbuilder. (DOI: 10.21981/JC41-XT92).

WORKSHOP/SHORT COURSE

1. Mechanistic Data Science for STEM students. (May 30 – August 10) Summer 2022 [Co-Instructor]
2. CMMI Game Changer Academics, NSF Division of CMMI, May 18, 2022. [Participant]
3. Mechanistic Data Science for STEM Education and Applications, Mechanistic Machine Learning and Digital Twins for Computational Science, Engineering & Technology, Sand Diego, CA. September 26, 2021. [Co-organizer]
4. Mechanistic Data Science for STEM Education and Applications, 16th USNCCM, July 25, 2021, Chicago, IL. [Co-organizer]
5. Mechanistic Data Science for STEM students. (June 8 – August 11) Summer 2021. [Co-organizer]
6. Multiscale Material Design, Instructor: Dr. Markus Buehler, MIT Professional Education, June 2016. [Participant]

PATENTS

P1. Deissler R J, Baig T N, Amin A A, Brown R W, Grimberg B G, "Magneto-Optical detection and discernment of biofluid crystals." February 28, 2019, US 2019/0064113 A1

SUCCESSFUL GRANTS

G1. August 2024, "Experiential Learning Innovation Fund". University of Dayton, Amount: $750
G2. Summer 2024, "UD-UDRI Summer Faculty Fellow", University of Dayton, Amount: $14,500
G3. August 11, 2022, "NASA GPU HACKATHON 2022." Three-day intensive GPU training in collaboration with NASA and NVIDIA.
G4. November 2016, "Crystics: A biocrystal detection system," VentureWell Stage I grant, VentureWell, Boston; USA. 5000 USD.
G5. August 2016, "Supercomputer to model MRI quench strains." Ohio Supercomputer Center, August 2016. 5000 RU≈50,000 compute hours.

SUCCESSFUL GRANTS (Not PI/Co-PI)

G1. April 2022, "GPU Accelerated Computational Mechanics at Northwestern University", McCormick Equipment Awards, Evanston, IL. 20,000 USD.

G2. December 3, 2021, "GPU accelerated computational modeling of laser powder bed additive manufacturing of metallic parts" Quest High-Performance Computing Cluster, Northwestern University. 35,000 compute hours.

G3. April 2021, "Thermal-CFD simulation of melt pool dynamics in additive manufacturing of metals", XSEDE Startup Grant. 2,500 GPU compute hours, 1,000 GB Storage.

GRANTS (Contributed Writing)

G1. September 2022, "CDS&E/Collaborative Research: Convolution HiDeNN-Tensor Decomposition for Integrating Multiscale Topological Optimization with Additive Manufacturing".

G2. August 2021, "Hierarchical Deep Learning Neural Networks Artificial Intelligence (HiDeNN-AI)", NSF-SBIR. (Neither PI nor Co-PI) [Not Awarded]

G3. January 2022, "Hybrid Equivalence- and Model-Based Approach for Machine-to-Machine Fatigue Life Qualification" NIST Metals-based Additive Manufacturing Grant Program. (Neither PI nor Co-PI) [Not Awarded]

G4. December 2021, "Collaborative Research: Framework Implementations: HiDeNN-CI: Hierarchical Deep-learning Neural Network Cyberinfrastructure," NSF - Cyberinfrastructure for Sustained Scientific Innovation. (Neither PI nor Co-PI) [Not Awarded]

PENDING GRANTS

G1. October 2024, "ERI: Hot Cracking and Porosity Detection in Metal Additive Manufacturing using Eddy Current Sensor", National Science Foundation, Announcement: NSF 24-590, PI: Abdullah Al Amin. (Amount: USD 200,000)

G2. June 2024, "Magneto-Electro-Thermo-Mechanical Field Interaction Study for Hypersonic Material by a Temperature-Assisted Eddy Current Sensor" Air Force Office of Scientific Research (AFOSR), Announcement: FOAAFRLAFOSR20240004, PI: Abdullah Al Amin (Amount: USD 450,000)

UNSUCCESSFUL GRANTS

G1. July 2024, "MessengerAM: Multimodal-enabled structural safety engine for Additive Manufacturing" DARPA, Defense Sciences Office, Announcement: HR001124S0018, PI: Wing Kam Liu (HIDENN-AI) Dong Qian (HIDENN-AI), Gino Domel (HIDENN-AI), Co-PIs: Gregory Wagner (Northwestern University), Jian Cao (Northwestern University), Wei Chen (Northwestern University), Tao Sun (Northwestern University), Ping Guo (Northwestern University), Fred M Carter III (DMG MORI Federal Services), Satyajit Mojumder (Washington State University), Sourav Saha (Virginia Polytechnic Institute and State University), Orion Kafka (National Institute of Standards and Technology), Nikolas Hrabe (National Institute of Standards and Technology), Nicholas Derimow (National Institute of Standards and Technology), Ye Lu (University of Maryland Baltimore County), Wei Xiong (University of Pittsburgh), Abdullah Al Amin (University of Dayton), Tim Osborn (University of Dayton Research Institute), Kelsey Snively (University of Dayton Research Institute). (Amount: USD 13,626,055, University of Dayton Share: USD 500,000)

G2. March 2024, "SALT-NIBs: Smart Additive-Subtractive Laser Technology for Sodium-ion Batteries", Department of Energy, Announcement: DE-FOA-0003236, Platform Technologies for Transformative Battery Manufacturing, PI: Abdullah Al Amin, Co-PIs: Andrew Schrader, Robert Lowe, Jitendra Kumar, Tim Osborn, Md Mahbubul Islam. (Amount: USD 1,800,000, Cost Share—University of Dayton: USD 420,000, Wayne State University: USD 50,000)

G3. March 2024, "Laser Powder Bed Fusion Additive Manufacturing of Reticulated Porous Structure of CaMnO3", Department of Energy, Announcement: DE-FOA-0003308, Small Innovative Projects in Solar: Concentrating Solar Power and Photovoltaics (SIPS: CSP & PV), PI: Abdullah Al Amin, Co-

PIs: Andrew Schrader, Rydge Mulford, Robert Lowe, Tim Osborn, Andrea Ambrosini. (Amount: USD 500,000, Cost Share— University of Dayton: USD 100,000)

INTERNAL GRANTS

G1. March 2024, "SALT-NIBs: Smart Additive-Subtractive Laser Technology for Sodium-ion Batteries", Department of Energy, Announcement: DE-FOA-0003236, Platform Technologies for Transformative Battery Manufacturing, PI: Abdullah Al Amin, Co-PIs: Andrew Schrader, Robert Lowe, Jitendra Kumar, Tim Osborn, Md Mahbubul Islam. (Amount: USD 1,800,000, Cost Share— University of Dayton: USD 420,000, Wayne State University: USD 50,000)

INVITED TALKS

I1. "Multiscale Multiphysics Computational Modeling: A Perspective in Additive Manufacturing, Magnetic Resonance Imaging Research, and Automotive Tire Analysis," Abdullah Al Amin, University of Wisconsin-Milwaukee, April 26, 2023.

I2. "Multiscale Multiphysics Computational Modeling: A Perspective in Additive Manufacturing, Magnetic Resonance Imaging Research, and Automotive Tire Analysis," Abdullah Al Amin, Florida Institute of Technology, April 19, 2023.

I3. "Large Scale System Design with Multiphysics and Multiscale Analysis: Applications in MRI Magnet and Additive Manufacturing," Abdullah Al Amin, South Dakota School of Mines, March 9, 2023.

I4. "Winning 2022 NIST Additive Manufacturing Benchmark Challenge and Beyond", Abdullah Al Amin, University of Dayton, March 6, 2023.

I5. "Multiscale Multiphysics Computational Modeling: A Perspective in Automotive Tire, Additive Manufacturing, and Magnetic Resonance Imaging Research," Abdullah Al Amin, University of Akron, March 3, 2023.

I6. "Winning the NIST AM Bench Challenge by Successfully Predicting the Laser Powder Bed Fusion Process," Abdullah Al Amin, University of Houston, February 28, 2023.

I7. "Predicting the Laser Powder Bed Fusion Process for Metal Additive Manufacturing", Abdullah Al Amin, University of Minnesota Duluth, February 6, 2023.

I8. "AM-CFD: a Well-validated Thermal-fluid Simulator for Additive Manufacturing Part Qualification", Yangfan Li, Abdullah Al Amin, Sourav Saha, Wing Kam Liu, August 18, 2022, Additive Manufacturing Benchmarks (AM-Bench 2022), Bethesda, MD.

I9. "Building the Next Generation Magnetic Resonance Imaging (MRI) Machines," October 2017, Intel Corporation, Oregon, USA.

I10. "Next Generation Magnetic Resonance Imaging (MRI) Magnet," August 2017, Bridgestone Americas, Ohio, USA.

I11. "A comparative study of coil winding techniques of a full body 1.5 T MgB2 based MRI magnets." April 2017, ISMRM 25th annual meeting & exhibition, Hawaii, USA.

I12. "Effect of Mechanical Support Conditions of Winding on the Strain Development of a Composite MgB2 Based Full Body, MRI Coil." October 2016, Applied Superconductivity Conference, Denver, Colorado, USA.

I13. "A Computational Study to Find an Optimal RRR Value for a 1.5 T Persistent-Mode Conduction-Cooled MgB2 MRI Magnet from a Quench Protection Point of View." October 2016, Applied Superconductivity Conference, Denver, Colorado, USA.

I14. "Variation in strain characteristics for multiscale multiphysics models of a 1.5T conduction cooled MRI system based on a 36 filament MgB2 composite wire." May 2016, ISMRM 24th annual meeting & exhibition, Singapore City, Singapore.

I15. "Stress and Strain Sensitivity Study of 1.5T Conduction Cooled MgB2 Magnet Design." May 2016, ISMRM 23rd annual meeting & exhibition, Toronto, Canada.

I16. "High throughput microparticle separation on curved microchannel based on inertial microfluidics." September 2013, Intel Corporation, Oregon USA.

MENTORING

1. University of Dayton
   a. Caleb Tanner, Graduate Student, University of Dayton. (Fall 2024 – Present)
   b. Ian Wall, Undergraduate Student, University of Dayton. (Summer 2024 – Fall 2024)
   c. Liam Howley, Undergraduate Student, University of Dayton. (Summer 2024)
   d. Rahul Singha Rathun, Masters Student, University of Dayton. (2024~Present)
   e. Sivaprasad Alisetty, Masters Student, University of Dayton. (2023-2024)

2. Northwestern University
   a. Satyajit Mojumder, Graduate Student, Northwestern University. (2021-2023)
   b. Sourav Saha, Graduate Student, Northwestern University. (2021-2023)
   c. Hengyang Li, Graduate Student, Northwestern University. (2021-2023)
   d. Yangfan Li, Graduate Student, Northwestern University. (2021-2023)
   e. Turash Haque Pial, Bangladesh University of Engineering and Technology (Current Position: Postdoctoral Scholar, Northwestern University, Evanston, IL). (2016-2019)

3. Remote Mentoring
   a. Rabiul Hasan Kabir, Bangladesh University of Engineering and Technology (Current Position: Lecturer, Sonargaon University). (2016-2019)
   b. Moinuddin Shuvo, Bangladesh University of Engineering and Technology (Current Position: Ph.D. Student, Penn State University). (2016-2019)
   c. Oishwarya Bhowmik, Bangladesh University of Engineering and Technology (Current Position: Graduate Student, Pennsylvania State University). (2016-2019)
   d. Md Shajedul Hoque Thakur, Bangladesh University of Engineering and Technology. (2020)
   e. Mahmudul Islam, Bangladesh University of Engineering and Technology. (Current Position: Graduate Student, MIT) (2020)