SULTAN MAHMUD

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EDUCATION

Binghamton University, State University of New York, Thomas J. Watson College of Engineering and Applied Science
Master of Science in Mechanical Engineering *Expected May 2026*
Relevant Coursework: Additive Manufacturing**,** Applied Mechanics**,** Elasticity, FEA, Analytical Methods

Xi'an Jiaotong University **Xi'an, China**
Master of Science in Mechanical Engineering *July 2023*
Cumulative GPA: 3.52/4.00
Relevant Coursework: Micro Nano Manufacturing Technology, Modern Control Engineering, Modern Measurement Technology

Hangzhou Dianzi University **Xi'an, China**
Bachelor of Science in Mechanical Engineering *July 2021*
Cumulative GPA: 4.42/5.00
Relevant Coursework: Mechanics of Materials, Theory of Machines and Mechanisms, Methods of Numerical Computation Mechanical Design, Mechanical Manufacturing Engineering

TECHNICAL SKILLS

Languages: MATLAB, C+
Software and OS: ABAQUS, CREO, Origin, AutoCAD, SOLIDWORKS, Photoshop, Illustrator, Camtasia
Additional: R&D, NPI, PD, TPM, CNC, FEA, Google Workspace, and Microsoft Office Suite
Certifications: CSWA (Additive Manufacturing), ANSYS Training, Innovation & Entrepreneurship Program, SOLIDWORKS Skill Development Course, Mechanical Engineering Design & Manufacturing with Fusion 360, BIM Fundamentals for Engineers

PROFESSIONAL EXPERIENCE

Luxshare Precision Industry Co. Ltd (Rida), *Product Development Engineer* | Nantong, China *Aug 2023 - May 2024*
- Led New Product Introduction (NPI) and Research & Development (R&D) projects, integrated Design for Manufacturing (DFM) strategies to optimize production processes and improve product performance
- Conducted Finite Element Analysis (FEA) for EMP Project simulations, ensuring robust product design and compliance with technical standards
- Developed manufacturing fixtures and optimized CNC machining processes, improving dimensional accuracy, reducing defects, and enhancing overall production efficiency
- Managed the Machine Health Check of Apple (MCH) project, delivering precise defect analysis, dimension improvements, and actionable insights for production quality control

Solids Control World Co. ltd, *Mechanical Design Engineer* | Hubei, China *Feb 2021 - Aug 2022*
- Provided tailored designs and competitive quotes for solids control equipment across mining, industrial, oil & gas, and civil construction sectors
- Delivered comprehensive solutions for solids control systems, ensuring alignment with client requirements and industry standards
- Optimize equipment designs, enhancing operational efficiency and client satisfaction
- Maintained a high level of customer engagement, ensuring timely delivery and effective communication for diverse international projects

RESEARCH EXPERIENCE

Multi-Axis 3D Printing for Advanced Curve Layer Slicing, - *Research Assistant* **|** Binghamton, NY *Aug 2024 - May 2025*
- Studied existing slicing techniques for curve-layered 3D printing and explored multi-axis 3D printer capabilities by identifying software and hardware for implementation and design algorithms for curve-layer slicing optimization
- Developed strategies for toolpath generation on non-planar surfaces and incorporate support structure generation for curved layers and implement curve-layer slicing algorithms in MATLAB
- Integrated slicing algorithms with multi-axis printer and build a user interface for customizable slicing parameters
- Tested compatibility with multi-axis 3D printer and multi-axis movements for precision and accuracy and compare results with traditional planar-layer slicing methods and evaluate print quality, material usage, and mechanical strength

Novel Food Safety Detection Technology using 3D Printing, XJTU- *Research Assistant* **|** Xian, China *Sep 2022 - Jul 2023*
- Investigated current detection methods for formaldehyde in foods and heavy metal in water and identify suitable chemical reagents and detection protocols for both contaminants

- Selected suitable materials and techniques for 3D printing the detection device and Develop image recognition algorithms for contaminant detection
- Evaluated detection accuracy, sensitivity, and response time by doing multiple experiment in lab.

PROJECT EXPERIENCE

Machining Technique of Manipulator Support and Tool Design for Milling36 Slot | HDU, China *Nov 2020*

- Studied the requirements and specifications for milling 36 slots
- Designed a manipulator support structure and fixture to ensure stability during milling using SOLIDWORKS and securely hold the work piece during machining, also selected milling tools suitable for slot dimensions and material

Enhancing the Cognition of CNC Lathe Machines for Improved Machining Efficiency | HDU, China *Dec 2020*

- Defined the scope of cognitive understanding for CNC lathe machines
- Studied and analyzed the architecture and functionality of CNC lathe machines, operator-machine interaction and identify potential challenges
- Developed a cognitive model to simulate decision-making during machining

Temperature Sensing Module Using ADC0808 | HDU, China *Dec 2020*

- Designed the circuit to connect the temperature sensor to ADC0808 inputs and configure I/O pins of the microcomputer for reading digital data from ADC0808
- Calibrated the temperature sensor with known temperature references and documented circuit design, code, and calibration procedures

PUBLICATIONS

Mahmud, M. S., Mkawe, P. N., & Nyagilo, V. O. (2025). A Comprehensive Analysis of Non-Planar Toolpath Optimization in Multi-Axis 3d Printing: Evaluating The Efficiency Of Curved Layer Slicing Strategies. Review of Applied Science and Technology. *Submitted*

Mahmud, M. S., Hasan, M. M., & Islam, M. B. (2024). Advances In Heavy Metal Detection: From Traditional To 3D-Printed And Smartphone-Based Methods. Journal of Next-Gen Engineering Systems, 1(01), 11–34. https://doi.org/10.70937/jnes.v1i01.25

Mahmud, M. S., Mkawe, P. N., & Islam, M. T. (2023). Multimaterial Additive Manufacturing for Integrated Electromechanical Systems. American Journal of Interdisciplinary Studies, 4(4), 52–79. https://doi.org/10.63125/y2ybrx17