ASMAUL HUSNA

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RESEARCH INTERESTS

- Additive Manufacturing,
- Advanced Manufacturing,
- Material Engineering,
- Artificial Intelligence & Machine Learning,
- Industrial risk management,
- Logistics planning and control,
- Industry 4.0,
- Supply Chain Optimization.

EDUCATIONAL BACKGROUND

Military Institute of Science and Technology (MIST) Feb 2019 – Feb 2023
Bachelor of Science (B.Sc.), Industrial & Production Engineering Dhaka, Bangladesh
Overall CGPA: 2.93/4.00 (Undergraduate Thesis Grade: 4.00/4.00)
Key Courses: Product Design, Machine Tools, Operations Research, Probability & Statistics, Numerical Analysis, Supply Chain Management.

UNDERGRADUATE THESIS

Optimization of SLA 3D Printing Parameters Based on RSM – ANN Approach Feb 2022 – Feb 2023

- The research aimed to utilize an SLA 3D printer to create parts and analyze the effects of different parameters on the printed objects.
- The primary objective is to optimize process parameters using Response Surface Methodology (RSM) and conduct predictive analysis with Artificial Neural Networks (ANN).
- Finally, after an exhaustive analysis of both RSM and ANN, a comprehensive comparison was conducted to evaluate their optimized value.

WORK EXPERIENCE

Research Assistant, EcoTech Research Lab Feb 2024 – Present

- Contributing to research on sustainable manufacturing, 3D printing, and advanced materials.
- Conducted experiments, analyzed data, and assisted with technical documentation.
- Worked on publishing a review journal related to additive manufacturing technologies.

Operations Intern, Marico Bangladesh Limited Feb 2023 – April 2023

- Improved the equipment classification process for all units in Shirirchala factory, implementing a more efficient and accurate system to categorize and manage equipment across the facility.
- Completed the Visual Standard Operating Procedure (SOP) for the filling and refinery unit.
- Created a standard sheet that outlines the specifications for all filling machines following CLIT standards.
- Completed a project focused on reducing OT for the store team. This involved implementing strategies and processes to optimize scheduling, improve efficiency, and minimize the need for overtime work.
- Designed a visual 5S map for the refinery unit. This map aimed at optimizing the workflow and maintaining a clean, organized, and efficient environment.

Industrial Trainee, Marico Bangladesh Limited Feb 2022 – March 2022

- Created a SWOT analysis on the Shirirchala factory of MBL.
- Implementing the 5S methodology on filling unit floor, to eliminate waste and optimize efficiency.
- Conducted Pareto analysis on the filling lines at Mouchak factory.
- Work study on customer offer unit at Mouchak factory.
- Created a report for MBL, which includes all the relevant details and findings.

ACADEMIC PROJECTS

1. Production and Cost Optimization by redesigning the existing plan layout of Marico Bangladesh Limited

- Redesigned factory layout of MBL to optimize cost and production using ARENA simulation software.

2. Multipurpose Agro Machine

- The multipurpose agro machine which is a wireless remote-controlled machine, is powered by battery and solar energy, operated, designed, and fabricated to do multiple tasks at the same time. The machine will do: 1. Ploughing, 2. Sowing seeds and Fertilizing, 3. Sprinkling water.
- Published as the best project paper in the magazine “MIST IPE Technical Papers 2022”.

PUBLICATIONS

1. Husna, A., Ashrafi, S., Tomal, A. A., Tuli, N. T., & Rashid, A. B. (2024). Recent Advancements in Stereolithography (SLA) and their Optimization of Process Parameters for Sustainable Manufacturing. *Hybrid Advances*, 100307.

2. Metal Additive Manufacturing for 4th Industrial Revolution: Advancement and Applications.

This study is to present a comprehensive review of the most common metal AM technologies, an exploration of metal AM advancements, and industrial applications for the different AM technologies across various industry sectors. **(Under Review)**

3. Optimization of SLA 3D Printing Parameters Based on RSM – ANN Approach.

This study aims to optimize process parameters (layer thickness, build orientation, curing time) using Response Surface Methodology (RSM) and Artificial Neural Networks (ANN) for SLA 3D printed parts. **(Under Review)**

EXTRACURRICULAR ACTIVITIES

IGNITE Campus Ambassador, Marico Bangladesh Limited Nov 2021 – Nov 2022

- An exciting journey over the year to work collaboratively and delve into extensive campus engagement activities that I lead.
- Strengthen communication skills with a diversity of students from different universities.

Graphics Designer, Coders Trust Bangladesh June 2020 – April 2022

- I am a proficient and creative graphic designer with 1.5 years of experience across various industry sectors. My expertise lies in crafting logos, business card designs, flyers, banners, brochures, posters, and a diverse range of design projects.

Director of Graphics Design, Hult Prize on Campus Round Aug 2021 – Feb 2023

- A good opportunity to gain some experience and polish my networking & communication skills by taking the lead in organizing and guiding design team members.

General Secretary, MIST Drama and Film Society (MDFS) April 2022 – Feb 2023

- Dealing with uncertainty, obtaining authority permission, and accomplishing tasks within designated timelines while providing leadership to a team.
- Worked and performed in an event “LOCKDOWN PARAMETER” in March 2020.
- Worked on a magazine “CINEMASCOPE” with my juniors in drama club.
- In June 2021, I had the honor of organizing an orientation program titled "TALE OF THE LIVING" in partnership with the esteemed "SONGKOLPO FOUNDATION."

Director(Communication), April 2022 – Feb 2023
IEOM (Industrial Engineering & Operation Management) Society MIST Student Chapter

- Managing communication with other organizations, handling supervisor disclosures, and coordinating various events.

Vice President(Creative Design),
MIST Career Club (MCC) & MIST Debating Society (MISTDS) April 2022 – Feb 2023

- Design advisor on any event promotions, gained ideas on various platforms to enhance my designing skills and knowledge regarding where to provide them.
- Worked on designing team of Bangabandhu Central Career Fest 2022.
- Working on BLAZE (the first ever yearlong publication initiative of IUT CBS) as Club Representative of MIST Career Club.

TECHNICAL SKILLS

- Engineering Software: SolidWorks, CATIA V5, Minitab, Arena Simulation Software
- Programming Skill: C, Python (ongoing)
- Microsoft Office: Microsoft Word, Microsoft Excel, Microsoft PowerPoint
- Design Software: Adobe Illustrator, Adobe Photoshop
- Language: English (Fluent Working Proficiency), Bangla (Native Language)

REFERENCES

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