ABDULLAH ARAFAT

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EDUCATION

M.S in Mechanical Engineering
The University of Utah | Utah, USA.
[Aug 2022 - May 2024]
CGPA: 3.727/4.00
Courses: **Finite Element Method, Continuum Mechanics,** Micromachining, Mathematics for Data Science.

B.S in Materials Science and Engineering
Khulna University of Engineering and Technology | Khulna, Bangladesh.
[Feb 2017 - Mar 2022]
CGPA: 3.62/4.00 (top 20%)
Courses: **Computer-Aided Design**, Materials Manufacturing Process, Phase Diagram, Welding and Metal Joining Process, Crystallography.

HONORS AND AWARDS

- Dean List Award
- Ignition 2018 **CAD Contest**: 1st /150 participants
- ASME CUET **CAD Contest**: 2nd/100 participants
- IPE FEST 2018 **CAD Contest**: 2nd/75 participants
- WASH Innovation Challenge 2018 (*Bhutan*): Finalist in South Asia

EXTRA-CURRICULAR EXPERIENCES

- **Official SOLIDWORKS Champion**
- Graduate Student Advisory Committee (GSAC) - Member [2023 - Present]
- American Geophysical Union - Member   [2023 - Present]
- KUET Career Club - Head of IT and Resource [2019 - 2022]
- Spectrum (Professional Skill Development Club of KUET) - CTO [2019 - 2020]
- Youth Opportunities (YO) - Campus Ambassador [2018 - 2019]

RESEARCH PUBLICATIONS

4 International journal publications
1 International book section
1 Conference publication

SUMMARY

- Expected to **graduate in May 2024**.
- **Authorized to work in the USA** and willing to relocate.
- Certified SOLIDWORKS Professional **(CSWP)**, Certified SOLIDWORKS Associate **(CSWP)** and Official SOLIDWORKS Champion.
- **6** years of experience in **mechanical design** and **1.5** years of laboratory experience in **Mechanical and metallographic testing.**
- **3** years of hands-on experience utilizing **fabrication tools**. Proficient in manufacturing techniques, design software, and programming languages.

SKILLS

- **Design, Rendering, and Simulations: SOLIDWORKS - CSWP, CSWA** (6 years), **AutoCAD** (5 years), ANSYS (2 years), ABAQUS (2 years), Fenics, Paraview, LAMMPS (3 years), VMD (2 years), Ovito (4 years), VESTA (5 years), Materials Studio (2 years), Blender, Key Shot.
- **Manufacturing and Testings:** Sand casting, Pattern Design, 3D printing - FDM (Ultimaker 3), CNC Milling (Roland MDX-540), Laser cutting (Epilog Laser MINI 18), Welding, Tensile Test (Instron), Torsion Test (Quadro), Bending test (MTS), Combined loading, Column buckling.
- **Micromachining:** Hands-on (Sputtering, Oxidation, Al and SiO_2 etching, DRIE Bosch Process), Theoretical (CVD, PVD, Etching, Mask making, etc.)
- **Programming & Data Analysis:** Python, C++, Bash, Batch, LaTeX, Excel, ImageJ.
- **Others:** Linux (Ubuntu), Microsoft Office, Adobe Illustrator, Adobe Photoshop.

WORK EXPERIENCES

Laboratory Teaching Assistant   [Aug 2022 - Present]
The University of Utah

- Acquired leadership skills from facilitating safe lab sessions and instructing 200+ students on experimental techniques and safety protocols for the **Mechanics of Materials (ME EN 3315) course**.
- Set up/calibrate equipment for mechanical tests: tensile, torsion, bending, pressure vessels, riveted joints, column buckling, and combined loading experiments.
- Provide personalized support, addressing questions and clarifications.
- Collaborated with instructors to develop new experiment procedures.

Design Engineer   [Nov 2018 - Aug 2022]
Emprotec Limited

- Proficient in **P&ID design** for tanks and pump systems, optimizing functionality and safety.
- Skilled in developing efficient reticulation systems and creating industry-standard layouts for LPG plants.
- Led projects on **Fire Safety layouts, Firewater P&ID** and managed accurate Bills of Materials for streamlined procurement.

Operator   [Aug 2019 - Mar 2020]
FabLab KUET

- Managed fabrication of 13 undergraduate thesis projects, 1000 key rings, and 10+ intricate designs using different fabrication tools.
- Maintained lab instrument functionality, ensuring smooth project operations.

PROJECTS

- Numerical Analysis of Aluminum Alloy 6061-T6: Elastic and Plastic Behavior.
- Finite element simulation of heat transfer in a Mug with a mug warmer using Fenics.
- Molecular dynamics simulation of hydrogen diffusion in SiO_2 using ReaxFF.