H.M. SHAKHAWAT (SOHAN)

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DOB: Nov 1998 | Gender: Male | Nationality: Bangladeshi

EDUCATION

Tsinghua University(985,C9) **Beijing, China**

M.S. in Mechanical Engineering (September 2023 – July 2026) (Expected)

Coursework: Fundamentals of Finite Element Method for Engineers, Laser Application, Numerical Analysis, Machine Design Process, Tribology, Welding Technology I: Welding and Cutting Technologies, Manufacturing Technology I, Biomedical Materials.

Changsha University of Science and Technology **Hunan, China**

Mechanical Engineering (Bachelor of Engineering). *September 2019 – July 2023*

Coursework: Engineering Materials, Thermodynamics and Heat Transfer, Mechanics of Materials, Theoretic Mechanics, Machine Design, CAD/CAM, Basis of Manufacturing Engineering, Technical Basis of Mechatronics, Embedded System, Precision Measurement and Control System, Industrial Robot Application Development Technology, Mechanical and Electronic Control Technology, Probability & Statistics, Linear Algebra, Advanced Mathematics, Fundamentals of Computer and Programming, Application Basics of Programming.

Lakshmipur Government College **Lakshmipur, Bangladesh**

Higher Secondary Certificate (Science) *Jan 2010 – Dec 2018*

Coursework: Higher secondary physics, Chemistry, Biology, Higher Math, Information and communication Technology.

EXPERIENCE

Research Assistant **Tsinghua University, Beijing, China**

Laser Additive Manufacturing / Biodegradable Materials Lab *Mar 2024 – Current*

- Conducted research on 3D-printed magnesium alloy scaffolds for bone regeneration, focusing on degradation behavior under mechanical loading and its impact on degradation rate and biocompatibility.
- Investigated laser cladding and parameter optimization (including power modulation effects) to enhance corrosion resistance and mechanical performance; analyzed how process parameters influence surface morphology and structural integrity.
- Built FEM models and performed stress/strain analysis using ANSYS; integrated simulation and experimental findings to optimize material/structure design for biomedical applications.

Teaching Assistant – **Tsinghua University, Beijing, China**

Laser Applications Course *Sep 2024 – Feb 2025*

- Assisted in course delivery on laser manufacturing principles and applications; supported lecture preparation and course organization.
- Helped supervise lab sessions (laser welding and laser cladding), guided students on experimental operation and safety, and supported data interpretation and reporting.

Engine Plant Intern **Dongfeng Commercial Vehicle Co., Shiyan, Hubei, China**

Design and factory investigate intern *Jun 2022 – Jul 2022*

- Supported engine design and manufacturing workflow; assisted design team with specification review and performance monitoring during factory testing.
- Participated in production-side troubleshooting and quality control activities to improve efficiency and product consistency

Creative Director (Remote) **Rabbani IT Solutions, Bangladesh**

Project manager (International) *Feb 2022 – Apr 2025*

- Led remote project coordination across 17+ countries, managing requirements, milestones, delivery timelines, and stakeholder communications.
- Developed and maintained project roadmaps, tracked progress, provided stage-wise updates, and ensured on-time deliverables.
- Coordinated cross-functional teams, conducted post-phase reviews, identified risks, and implemented preventive actions to ensure smooth execution.

PUBLICATIONS

1. Additive Manufacturing (2025): "3D Printed Metal Structures with Inherent Micro Pores to Enhance Biodegradability and Absorbability."
2. Coatings (2023): "An Overview of Technological Parameter Optimization in the Case of Laser Cladding."
3. (Co-author, 2022): "Impact of Power Modulation on Weld Appearance and Mechanical Properties During Laser Welding of AZ31B Magnesium Alloy.
4. International Journal of Optomechatronics (Accepted, 2025) Laser Applications in Oral Precise Medicine: From Excision to Restoration

PROJECTS

Numerical Simulation of Stainless-Steel Laser Cutting (Maxphotonics) **Aug 2024 – Feb 2025**

- Performed numerical simulations for laser cutting; analyzed parameter influence and proposed optimized settings to improve cutting quality and manufacturing efficiency.

Mechanical Design Engineer (Remote) Walton Hi-Tech Industries PLC, Bangladesh **July 2023 – Sep 2025**

- Designed and evaluated mechanical components with focus on heat transfer and structural safety. Performed fracture and failure analysis to improve durability and optimize design for manufacturing implementation.

Robotic Arm for Automated Assembly Line Optimization **Aug 2022 – Jan 2023**

- Designed and developed a robotic arm using SolidWorks and Arduino; integrated sensors to improve accuracy and automation efficiency.

Formula Student Racing Team (CRT – Formula 11) **Oct 2021 – Jun 2022**

- Contributed to body and suspension design with emphasis on lightweight structure and performance efficiency.

CONFERENCE

ICCES 2025 – 31st International Conference on Computational & Experimental Engineering and Sciences **Changsha- May 25, 2025**

Presented research on 3D-printed micro-porous metal structures to enhance biodegradability for bone regeneration, including patient-specific scaffold design concepts and functional performance discussion.

SCHOLARSHIPS & AWARDS

Chinese Government Scholarship (CSC), Tsinghua University (2023 – 2025)
Excellent Graduate, Changsha University of Science and Technology (2023)
Hunan Provincial Academic Excellence Scholarship (2022 – 2023)
Hunan Provincial Academic Excellence Scholarship (2021 – 2022)
Xi'an Jiaotong University Summer Camp – Outstanding Member Award (2022)
Bangladesh Physics Olympiad – National Rank/Recognition (2015 – 2016)

SKILLS

Manufacturing & Processes: Laser welding, laser cladding, 3D printing (LPBF), CNC machining
CAD/Modeling: SolidWorks, AutoCAD, Tinkercad, MATLAB, Simulink
Analysis & Simulation: ANSYS (Workbench/Fluent), FEM, CFD, Electrochemical Impedance Spectroscopy (EIS)

LANGUAGES

Chinese (HSK 4), English (Fluent), Bengali (Fluent), Hindi (Indian, Fluent), Urdu (Pakistan, Fluent)

VOLUNTEER & LEADERSHIP

- **International Committee of the Red Cross (ICRC- THU) – Volunteer (2023 – 2024)**
- **UN Outstanding Human Resources Program THU – Volunteer (2023)**