Suvojit Baidya

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Education

Khulna University of Engineering & Technology (KUET) — B.Sc. in Mechanical Engineering; **CGPA: 2.81/4.00** Jan 2020 – Oct 2025

Research Interests

Additive Manufacturing	Finite Element Analysis	Sandwich Structures
Origami Structures	Smart Materials	Composite Materials
Dynamic Analysis	Biomaterials	Topology Optimization

Publications and Research Experience

Under Review

- *Experimental and Numerical Study on Flyash-Reinforced Core of 3D-Printed PETG/WPLA Honeycomb Sandwich Structure*
  *Simulated and validated force displacement and MOE of the sandwich structures
  *Analyzed energy absorption variation and failure modes with and without flyash-reinforcements

Ready to Submit

- Experimental and Numerical Investigation on Effect of Radius of Curvature of Miura-Ori inspired Origami Structure.
  Miura-Ori inspired parallelogram shaped structure's quasi-static and cyclic compressive behaviour with DMA
  **Modeled curved-crease Miura-Ori panels with varied crease radius*
  **Analyzing Quasi-static and cyclic compression behavior focusing on SEA, hysteris area and recoverablity*
- *Effect of Material Orientation and Core Geometry on Bending Behavior of PLA+ and ABS-Based 3D-Printed Honeycomb Sandwich Structure*
  **Optimized EA of honeycomb sandwich structure for various cell thickness*
  **Numerically studied various cell thickness in flexural test of honeycomb structures*

In Progress

- Flexural Behavior and Specific Energy Absorption of Octopus Suction-Cup-Inspired Additively Manufactured Sandwich Cores: An Experimental and Numerical Study.
  **Generated bio-inspired cores with tunable cavity diameter and shell thickness*
  **Measured SEA, plateau stress, and failure modes under quasi-static compression and bending; validated with Ansys*
  **Performing geometry optimization to balance stiffness-to-weight with energy absorption.*
- Compressive Response of Material Orientation and Core Geometry on Bending Behaviour of PLA+ and ABS Based 3D-Printed Honeycomb Sandwich Structure
  **Establishing Analyzing rate-independent FE correlations to predict onset of densification and post-yield behavior.*

Leadership and Co-Curricular Activities

Captain, Team Kilo Flight (Formula SAE), KUET 2024 – 2025

- Directed cross-functional subteams (chassis, aero, powertrain) from concept to design reviews and build planning.

Business & Marketing Analyst, Team Kilo Flight (KUET) 2023 – 2024

- Supported budgeting, sponsorship collateral, and event communications to sustain team operations.

Project Experiences

Design & Development of Formula SAE Electric Vehicle Team Captain

- Led first EV design of Team Kilo Flight; developed chassis and composite with structured assembly and testing.
- Applied CFD and FEA to guide bodywork and structural decisions; prepared manufacturing drawings and BOM.

University Collaboration — Eastern University, Dhaka 2023 – Present

- Feasibility testing for low-power auto-rickshaw concepts tailored to Dhaka's duty cycles.

Awards & Achievements

- Formula SAE Japan (2023) (30th of 77 teams)
  Cleared Mechanical Inspection as a First Year Vehicle: first team from Bangladesh
- Special Recognition Award for Co-curricular Excellence - Director of Student Welfare, KUET
- Technical Board Scholarship — Outstanding Higher Secondary Certificate results.

Certificates & Badges

ANSYS Learning Pathways (competency-based)

- *Structural & Dynamics:* Modal/Harmonic response, damping, strain & deformation analysis, fatigue-aware design checks.
- *Optimization:* Topology optimization and design-space constraints for lightweight structures.
- *Composites & FSAE:* Chassis analysis and composite monocoque workflows (laminate layup, failure criteria).

Workshops

- CFD Simulation Workshop — IMechE, KUET (foundation to publication-oriented practice).

Technical & Software Skills

Simulation/FEA: ANSYS (Fluent/CFD, Mechanical: Structural, Rigid & Explicit Dynamics), ABAQUS
CAD & Rendering: SolidWorks, AutoCAD, KeyShot
Additive Manufacturing: Bambu Studio
Programming: C, Python

Hands-on Experience

- **Machining:** drilling, CNC milling, grinding, and metal cutting for prototype brackets & fixtures; tolerance checks with calipers/micrometers.
- **Joining:** manual arc welding; basic jig/fixture setup; safety compliance and visual inspection of weld quality.
- **Additive Manufacturing:** FDM printing (Bambu Studio); part orientation/support strategies; post-processing for fit & finish.
- **Test & Measurement:** UTM operation for flexural/compressive tests; specimen preparation and data logging for reports.