Avinash Yadav

Roll No.: 214103109
M.Tech - Computational Mechanics
Department of Mechanical Engineering
Indian Institute Of Technology, Guwahati

+91-7007567982
yavinash@iitg.ac.in
GitHub | github.com/avinashya
avi81278299@gmail.com
linkedin.com/in/avinash-yadav-8ba709145/

Education

Degree/Certificate	Institute/Board	CGPA/Percentage	Year
M.Tech	Indian Institute of Technology, Guwahati	7.45 (Current)	2021-Present
B.Tech	Rajkiya Engineering College, Azamgarh	66.26%	2015-2019
Senior Secondary	CBSE Board	85.6%	2014
Secondary	UP Board	86.0%	2012

Experience

- **Teaching Assistant in Material Science (ME-213)** *July 2022 - Ongoing*
  Dr. Prasenjit Khanikar, Assistant Professor, Department of Mechanical Engineering, IIT Guwahati
  – Work includes conduct the exams, evaluate assignments and tutorials.
- **Mathematics Tutor in DISHA** *July 2022 - Ongoing*
  – Teaches Mathematics to the underprivileged students in the Kendriya Vidyalaya IIT Guwahati under DISHA initiative, Social Service Club, IIT Guwahati.

Projects

- **Design and fabrication of Shear Thickening Fluid based Impact Resistant Material (MTP)** *Ongoing*
  Dr. Prasenjit Khanikar, Assistant Professor, Department of Mechanical Engineering, IIT Guwahati.
  – Designed microlattice of PA12 and filled with STF polyethylene glycol, simulated in Abaqus CAE.
  – Simulated results shows that the energy absorption capacity of STF filled microlattice increases to 160-200% and Weight is less than 40-60% compare to only microlattice.
  – STF filled microlattice having less weight, high energy absorption capacity, low vibration and damping applications are very useful in making automobile body parts.
- **Fabrication of Self Powered Automatic Crash Detection System (BTP)** *July 2018- May 2019*
  Dr. Saurabh Kumar Singh, Assistant Professor, Department of Mechanical Engineering, REC Azamgarh
  – Fabricated the crash detection system which can detect the sound waves generated by vehicle collision in the range of 25 m.
  – Sound waves properties is verified with database in the microcontroller and message is send to the nearest service from GSM module.
  – System requires only 30% of the total power generation by Tangential wind turbine.
- **Constraint Optimization of Multi-Variable Functions with Penalty Method in C** *July 2021 - Nov. 2021*
  Dr. Deepak Sharma ,Associate Professor, Department of Mechanical Engineering, IIT Guwahati
  – Phase 1 -Bounding phase method is used to converge the function in a specific range, After that Newton Raphson method used to converge the function.
  – Phase 2 -Powell's Conjugate direction method is used, in this method we perform series of unidirectional search along each of search direction from previous best point.
  – Phase 3 -Penalty function method is used, if the constraints violated then objective function get penalised.
- **Development of Various Numerical Methods in C++** *Jan. 2022 - May. 2022*
  Github
  – Developed C++ codes for Conjugate gradient method, Gauss Seidel method, Power method, Shifted inverse power method, Modified Euler method, RK-4 method, Adams-bashforth method, Shooting method and Finite difference method.
- **Failure Analysis of Fibre Reinforced Polymer (FRP) Composites** *Jan. 2022 - May. 2022*
  Github
  – Developed Matlab code to find the nth ply failure load and last ply failure load, considering complete and partial degradation of failed plies using classical laminate theory.
- **ETHER Web 3.0 App** *May. 2022 - Sep. 2022*
  https://ether-avi.netlify.app/
  – Design and developed Web 3.O Blockchain based app used to transfer the Cryptocurrencies from one account to another. Metamask pairing, interaction with smart contracts, HTML, CSS, JavaScript, React, and solidity is used to design the project.
- **Woo Chat App** *May. 2022 - Sep. 2022*
  https://aviwoochatapp.netlify.app
  – Design and developed Woo Chat App based on the HTML CSS and JavaScript. Socket.io is used to connect the server with the client.

Technical Skills

–**Programming**: C, C++, Python*.
–**Web Technologies**: HTML, CSS, JavaScript*.
–**Database Management**: MySQL.
–**Software and Tools**: Matlab*, Abaqus CAE*, Ansys Workbench and fluent*, Autodesk Inventor.
–**Operating system**: Windows, Linux*.
–**Miscellaneous**: MS Visio, Word, Excel, Powerpoint.

** Elementary proficiency*

Key courses taken

Advanced Engineering Mathematics	Numerical Analysis
Optimization Methods in Engineering	Engineering Computing Laboratory
Continuum Mechanics	Finite Element Method
Computational Mechanics Laboratory	Introduction to Composite Materials

Online course: Mastering Data Structure and Algorithms using c and c++ on Udemy, instructor Abdul Bari

Achievements

–**GATE 2021**: Secured 95.74 percentile among 1.21 lakh condidates.
–**GeeksforGeeks**: Scored 480+ on gfg solving DSA problems in C++ and still in progress.

Extracurricular Activites

–**Blockchain Workshop 2022**: Participated in the Workshop on Scaling blockchain : From Bitcoin to the Lightning Network, organised by Department of CSE , IIT Guwahati in collaboration with university of catania, Italy.
–**Summer Analytics 2022**: Completd a six weeks of course in summer analytics , a prime course on Data science and Machine learning, organised by consulting and analytics club, IIT Guwahati.
–**SMART INDIA HACKATHON 2022**: Volunteer in Smart India Hackathon, organised by IIT Guwahati.
–**Python Workshop 2021**: Participated in the Workshop on Python Training For Scientific Computing and Data Science, organised by Student's Academic board IIT Guwahati.
–**MATLAB Workshop 2021**: Participated in the Workshop Introduction to MATLAB from a Numerical Analysis perspective, organised by Student's Academic board IIT Guwahati.
–**Industrial Training 2018** : Completed four weeks of industrial training in Mechanical Workshop, N.E. Railway Gorakhpur.
–**Class Representative (2018)**: Streamlined the starting crash courses in college compus for competitive exams (GATE, SSC JE) from the reputated institute which benefitted 150+ students from 3 different discipline .