

Tanishque Zaware

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Education

Indian Institute of Technology Gandhinagar

B.TECH IN MATERIALS ENGINEERING WITH MINOR IN COMPUTER SCIENCE AND ENGINEERING (CPI :7.94)

Gandhinagar Gujarat, India

July. 2018 - PRESENT

Narayana Junior College Hyderabad

SENIOR SECONDARY EDUCATION PERCENT : 96.9

Hyderabad Telangana, India

2015-17

Army Public School Ahmednagar

SECONDARY EDUCATION CGPA : 10

Ahmednagar Maharashtra, India

2015

Experience

Finland Labs

INTERN

India

Oct -Nov 2020]

- Worked on IoT using AWS and Machine learning with AI.
- Cloud computing along with creating channel for live data feed.
- Automatically tweet sensor data on Twitter
- Control Home devices from self-hosted webpage on Amazon AWS.

ITC

INDUSTRIAL PROJECT

India

May -Aug 2021

- Alternative packaging solutions for foods and other packaged goods to increase sustainability and regulatory compliance in the wake of restrictions on plastics.
- Researched on other materials like plasticizers that can be added to biodegradable plastic along with the simulation.
- Received first company research experience to work with one of India's leading company ITC.

Projects

Meso Scale Characterization of Mechanical Properties in two phase Al -HEA

Presentation

IIT Gandhinagar,India

MENTOR- PROF. PRADIPTA GHOSH, MATERIALS ENGINEERING

Jan - Nov 2021

- Found change in strain and the effect of strain hardening in bimodal microstructure using MATLAB and XRD pattern along with fit analysis.
- Determined individual contribution of the phases in a multi phase high entropy alloy.

Alternative sustainable packaging solutions for food instead of plastics

Report

IIT Gandhinagar,India

MENTOR-DR. SHIVANANDA K N, LEAD SCIENTIST AT ITC LIMITED

Oct 2021- present

- Researched on other materials like plasticizers that can be added to biodegradable plastic.
- Performed simulation with different layer types using COMSOL software.
- Calculated and worked upon decreasing oxygen, oil and water permeability through simulation.

Parameter optimisation using Machine Learning in Additive manufacturing.

Presentation

IIT Gandhinagar,India

MENTOR- PROF. AMIT ARORA, MATERIALS ENGINEERING

Oct 2021- present

- Currently working on the use of Artificial Neural Network (ANN) in additive manufacturing.
- Optimizing parameters (like power, scanning speed, etc) for a desired output or key quality indicators like density.
- Working mainly for Selective Laser Melting technique under Powder Bed Fusion printing techniques.

Course Projects

Save the viper

Link

IIT gandhinagar,India

MENTOR- PROF. NEELDHARA MISRA, COMPUTER SCIENCE, COURSE-ES 112

Oct 2018

- Developed a game using python. Used random, time and pygame libraries. Also designed various components of the game from scratch.
- Added some aesthetic features like change of user interface color and the background music every time the game is initialized.

Convertible bed **Abstract** **Video** **Utilities**

MENTOR – PROF. GAURAV SRIVASTAVA, CIVIL ENGINEERING, COURSE-ES 101

IIT Gandhinagar, India

Oct 2018

- Originated the idea of convertible bunk bed to double bed.
- Modeled the prototype in AUTOCAD and drawings of before and after the conversion.
- Practical design and inclusive for all along with the needs of differently abled persons with space optimization.

Chaos theory **Presentation**

MENTOR – PROF. UDIT BHATIA, CIVIL ENGINEERING, COURSE-MA 102

IIT Gandhinagar, India

March 2019

- Analyzed Chaos Theory using Lorenz differential equations and plotted their trajectories using C++. Required analysis of variation of the result with changing initial conditions.
- Application in meteorology, economics and electrical circuits

LT Spice Simulation **Pdf**

MENTOR - PROF. NITIN KHANNA, ELECTRICAL ENGINEERING, COURSE-ES 104

IIT Gandhinagar, India

Feb-March 2019

- Designed LT spice simulation for given values of resistors and voltages.
- Used as reference for cross evaluation of manual results.
- Conducted periodic security checks on overall IT system as a member of POSTECH CERT.
- Conducted penetration testing commissioned by national agency and corporation.

Circumdatus **Project Report**

MENTOR – PROF. MANSI KANETKAR, DESIGN AND INNOVATION, COURSE - ES 201

IIT Gandhinagar, India

August – Nov 2019

- Hands on experience in building a product that can ease the plucking of underground veggies for farmers.
- The project involved working from scratch and building three different mock prototypes

Functioning of refrigerant R134a in automobile air conditioner **Project Report**

Video **Pictures**

MENTOR – PROF. ATUL BHARGAV, MECHANICAL ENGINEERING, COURSE - ES 211

IIT Gandhinagar, India

Sept – Nov 2019

- Processes that the refrigerant R134a (tetrafluoroethane) undergoes in automobile air conditioner.
- Explored the boundary conditions of all these processes and working in detail.
- 3D printed the PVT graph of the whole cycle of the processes (photos attached).

Polarizability and refractive index **Report**

MENTOR- PROF. KRISHNA KANTI DEY, PHYSICS DEPARTMENT, COURSE - PH 102

IIT Gandhinagar, India

Oct – Nov 2019

- Worked on the relation between refractive index and polarizability with varying concentration.
- Due to lack of precision of equipment to measure the small fringes, our measurements of the refractive index were not accurate. For the accurate result, we need to count fringes which are in the range of 10^3 to 10^4 .

Future of Ahmedabad: Collapse or Rejuvenation? **Presentation**

MENTOR- PROF. MONA MEHTA, HUMANITIES AND SOCIAL SCIENCES, COURSE - HS 201

IIT Gandhinagar, India

Feb - July 2020

- Prediction of possible collapse of Ahmedabad due to exploitation of environment leading to socio-economic crisis and its aversion.
- Proposed the timeline and threats of next 200 years which can lead to collapse of Ahmedabad and further discussing the plan of averting the collapse.

Phase transformations in Lithium Batteries **Report**

MENTOR- PROF. ABHAY RAJ SINGH GAUTAM, MATERIALS ENGINEERING, COURSE - MSE 201

IIT Gandhinagar, India

Feb - July 2020

- Reviewed phase transformations in lithium batteries and advantage of silicon anode over graphite anode lithium batteries.
- Discussed the working and future renewable modifications possible.

Mechanical Properties of Nano-twinned Structures **Presentation**

MENTOR- PROF. PRADIPTA GHOSH, MATERIALS ENGINEERING, COURSE - MSE 303

IIT Gandhinagar, India

Aug - Nov 2020

- Worked on mechanical properties of equiaxed grained, columnar grained and nano pillars/wires nano twinned materials.
- Analysed strain hardening, strain rate sensitivity, failure, fatigue, etc in all the above mentioned materials.

Commercial production of Aluminium **Report**

MENTOR- PROF. PROF SURYA PRATAP MEHROTRA, MATERIALS ENGINEERING, COURSE - MSE 304

IIT Gandhinagar, India

Aug - Nov 2020

- Assessing manufacturing of aluminium in India from Bauxite, right from ores along with its extraction and purification.
- Study on top ten aluminium industries in India regarding production capacity and production cost.

Role of Advanced Materials in Quantum Computers **Presentation**

MENTOR- PROF. SUPERB MISHRA, MATERIALS ENGINEERING, COURSE - MSE 305

IIT Gandhinagar, India

Aug - Nov 2020

- Generated a game for good understanding of the working of a quantum computer.
- Discussion of how qubits are stored inside materials like ion traps, nanowire, semiconductor dot, etc.
- Advanced applications of qubits for creating private keys for security.

Surf Excel company exploration [Presentation](#)

MENTOR- PROF. MARCOS SEVERO, BUSINESS & MARKETING, COURSE - MSE 491 (2)

- Product review (Surf Excel) through different techniques like attitude chart, perceptual map, etc.
- Involved discussion of the product's different strategy for marketing and consumer engagement.

IIT Gandhinagar, India

Jan - May 2021

Corrosion of plastics and elastomers [Presentation](#)

MENTOR- PROF. AMIT ARORA, MATERIALS ENGINEERING, COURSE - MSE 302

- Explained failures of corrosion in plastics and elastomers, through real life experiences and photos.
- Explored types and prevention techniques of corrosion in plastics.

IIT Gandhinagar, India

Jan - May 2021

Analysis of Aloha Flight 243 (Boeing 737) Plane Crash, Hawaii, April 1988 [Report](#)

MENTOR- PROF. AMIT ARORA, MATERIALS ENGINEERING, COURSE - MSE 302

- Case study on Aloha flight 243 Plane crash due to roof and lap joints failure.
- The case highlighted the importance of corrosion in real life and the need for safety.

IIT Gandhinagar, India

Jan - May 2021

Spark Plasma Sintering Vs Conventional Sintering [Presentation](#)

MENTOR- PROF. PRADIPTA GHOSH, MATERIALS ENGINEERING, COURSE - MSE 307

- It involved reviewing a paper and explaining and connecting to what had been taught in the course lectures.
- Mechanism and stages of both the process along with the advantage of spark plasma sintering (SPS) was discussed in detail.

IIT Gandhinagar, India

Jan - May 2021

Translating navigation instructions for robot navigation [Poster](#)

MENTOR- PROF. MAYANK SINGH, COMPUTER SCIENCE, COURSE- CS 613

- Worked on translating natural language navigation instructions to robotic language using Natural language processing (NLP).
- Involved working from scratch due to less information in the citations.
- Formulated different idea of learning in chunks which enhanced the model.

IIT Gandhinagar, India

[Aug 2021-present]

Study the effect of alloying on mechanical properties of a High Entropy Alloy

[Presentation](#)

MENTOR- PROF. RAGHAVAN RANGANATHAN, MATERIAL SCIENCE, COURSE- MSE 402

- Used LAMMPS for molecular dynamics of high entropy alloys (HEAs).
- Created an FCC crystal using rule of mixtures and further analysed it in Ovito.
- Performed various tensile and compressive tests at different strain rates and temperatures along with its analysis.

IIT Gandhinagar, India

[Aug 2021-present]

Awards and achievements

| | | |
|-----------|---|-------|
| Mar 2018 | JEE (Joint entrance exam) Mains , Achieved a rank of 3312 from 1.2 Million students in JEE Mains. Link | India |
| May 2018 | JEE Advanced , Cracked JEE Advanced with a rank of 7816 out of 200k people. | India |
| July 2015 | Academic excellence , Received appreciation letter from HRD (Human Resource Development of India) Minister, Smriti Zubin Irani for academic excellence in 2015 for class 10th CBSE results. Link | India |
| Feb 2014 | National level science talent search examination NSTSE , Achieved a state rank of 692 and All India Rank 6961 from about 400k participants in 14 countries. Link | India |
| Oct 2014 | FIITJEE Maharashtra Science Talent Search Exam , Among the 1050 meritorious students selected with a rank of 142. Link | India |
| Dec 2009 | 3rd International Mathematics Olympiad SOF , Achieved city rank 15 and International rank 7765. Link | India |

Technical Knowledge

Programming :

Python, C/C++, JAVA, LaTeX, HTML

Tools and methods :

Etching, Sample preparation and mounting, Polishing (both hand and cloth methods), Hardness testing, ImageJ , Grazing Incidence X-ray Diffraction (GIXRD), Transmission electron microscopes (TEM), DHT 11 Temperature Humidity Sensor, Ultrasonic Sensor, IR Sensor, Node MCU V3.

Softwares :

COMSOL, arduino, Autodesk Inventor Professional, Adobe Illustrator, Adobe Photoshop, MATLAB, Cantera, AutoCAD, Ovito, Filmora.

PORs

Hallabol

IIT Gandhinagar, India

EVENT ORGANIZER

March 2019

- Successfully organized street hockey event for Hallabol 2019 (sports festival) for ten consecutive days. Handled and brought participation of around 90 people.

Blithchron 2020

IIT Gandhinagar, India

EVENT MANAGER

Sept 2019- Feb 2020

- Event manager of Solo Impromptu (dance face off event) and Antaragnee events (drama event).

Jasba 2020

IIT Gandhinagar, India

EVENT MANAGER

Sept 2019- Feb 2020

- Event manager of dance face off event (JASBA). Handled participation in and outside the campus of IIT.

FLY Against COVID Report

IIT Gandhinagar, India

TEAM LEADER

Sept 2019- Feb 2020

- Have led a team of 5. Fight against COVID-19 by fostering education and balancing mental health.

Polarizability and refractive index project.

IIT Gandhinagar, India

TEAM LEADER

Sept 2019- Feb 2020

- Have led a team of 3. Managed the advanced equipment needed for the experiments along with other requirements.

Extracurricular Activity

Consulting and Analytics Club, IIT Guwahati's SUMMER ANALYTICS : A primer course on Data Science

India

PARTICIPANT

July -Aug 2020

- Successfully completed 250+ hours of Data science bootcamp and completed a project on Kaggle.

Explorer Fellowship IITGN - Video

India

MEMBER

May 2019

- Annual summer program that enables students, organised in small teams, to undertake a six-week adventure across the country.
- Designed the itinerary on our own, while managing the expenses.
- Interviewed handicraft artisans throughout our itinerary on how technology can affect their livelihood.

League of football players(LFP) IITGN

India

MEMBER

2018-19

- Runner-up of LFP.
- Flagship event of Intra- College Sports activities at IIT Gandhinagar.

Social Work

| | | |
|----------|--|-----------------------------|
| Aug 2018 | Cleanliness Drive , Sanitation drive was carried out with support from AMC (Amdavad Municipal Corporation) and the Solid Waste Management and Health Departments of AMC in Ahmedabad. Link | Ahmedabad Gujarat, India |
| Aug 2018 | NEEV , Aimed at growing employability and entrepreneurship mindset of the members of IITGN's surrounding communities. | IIT Gandhinagar, India |
| Aug 2018 | Tree Plantation , Planted saplings in the campus with the help of authorities. | IIT Gandhinagar, India |
| Aug 2018 | NASA , Support and educate the children of migrant construction workers in and around the campus | IIT Gandhinagar, India |
| Nov 2019 | Run for Unity , A 2.3 km long run as a tribute to Shri Sardar Vallabhbhai Patel on his birth anniversary to demonstrate unity and integrity. Link | IIT Gandhinagar, India |
| May 2020 | Corona Initiative Plan , Came up with innovative and practicable ideas, suggestions or solutions that address the myriad problems caused by the current Covid-19/Corona virus pandemic in various aspects of life. Idea | IIT Gandhinagar, India |