Agni Keyoor Purani

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EDUCATION

Indian Institute of Technology Kharagpur — West Bengal, India
Integrated MSc. in Physics, GPA: 9.50/10.00 — 2019–Current

Central Board of Secondary Education — India
All India Senior School Certificate Examination (Class 12), Score: 96% — 2019–Current

Central Board of Secondary Education — India
All India Secondary School Examination (Class 10), CGPA: 10.00/10.00 — 2019–Current

EXPERIENCE

Aerial Robotics Kharagpur — IIT Kharagpur, India
Software Team Member — 2020–Current

- Computer vision in drones and path planning
- Using deep learning and other methods to achieve special tasks with the Drones
- Helped in designing the website for the group

TeamKART — IIT Kharagpur, India
Member — 2019–2020

- Design and Development of new formula style cars solidworks
- Electronics for data acquisition

Naturecraft Fashions Pvt. Ltd. — India
CTO (Part Time) — 2018–Current

- Developing and maintaining E-commerce platform

SKILLS

- **Programming Languages:** FORTRAN 90, C, C++ (STL, OpenCV), Octave, HTML, CSS, Arduino, LaTeX, Python (OpenCV, pandas, NumPy, SciPy, scikit-learn, flask, Matplotlib, Qiskit)
- **Applications and Tools:** MATLAB Simulink, SolidWorks, LTSpice, ROS, SQL

LANGUAGES

- **English:** Excellent proficiency
- **Hindi:** High proficiency
- **Gujarati:** Moderate proficiency
- **German:** A1-level proficiency
- **French:** A1-level proficiency

PROJECTS

- **Theoretical Understanding Of Kármán Vortex Street** (2021)
  A mini-project done as a part of fluid mechanics course (PH20101)
  - Attempt was made to study and get a theoretical relationship of frequency of vortex shedding for a cylinder
  - First flow was found around the cylinder.
  - Point of separation was found.
  - Method to find the point of instability and frequency of was given.

- **Modified Linear Tangent Guidance** (2020)
  A mini-project done as a part of classical mechanics course (PH20001)
  - Found out the guidance equation of a rocket from a curved Earth
  - Used techniques of Pontryagin's minimum principle and perturbation to get the guidance equations
  - Used numerical techniques to simulate the guidance law in action

- **Website for Aerial Robotics Kharagpur** (2020)
  Made a static webpage for aerial robotics kharagpur

- **Super Resolution** (2020)
  Implementation of SRCNN using SSIM Loss to generate super resolution images
  - SRCNN was used as the base
  - Structural similarity Index (SSIM) was used as cost function
  - Was done is YCbCr colour scheme

- **ScamCanner** (2020)
  A program that takes an image and outputs a scanned like image
  - SURF to detect features after processing so that text is not detected as a feature
  - Uses logistic regression to classify as edges
  - Find bounding quadrilateral and transform
  - Local Adaptive thresholding to make it readable

- **Russian Text Detector** (2020)
  A ROS program that takes video feed and identifies a matching Russian string
  - Uses ROS messages to pass video feed and TessaractOCR to identify Russian text

- **Kalman Filter Implementation** (2020)
  A python script that implements Kalman filter
  - Reads data of flight paths in csv file and plots it
  - Removes false positives and uses Kalman filter to add missing data

Scholarships and Academic Awards

- NIUS Physics Camp 17.1, HBCSE (TIFR), India   2020–2021
- Inspire Fellowship, Dept. of Science & Technology, Govt. of India   2020–Current
- JEE Advanced, National Rank 5877 (among about 173,000 registered)   2019
- JEE Main, National Rank 3020 (among about 1.15 MN. registered)   2019

Extracurricular Activities

- Nexus Competition held during Kshitij (Annual Technomanagement fest of IIT Kharagpur)   2020
  Awarded First place for the event. It was mainly a computer vision problem where a bot has to recognize shapes, colour and custom barcodes and take decisions accordingly.
- Inter Hall Ad Design Competition, IIT Kharagpur   2019–2020
  Awarded Second place for the topic of creating a movement for saving the environment.
- Volunteer & Unit Leader at National Service Scheme   2019–2021
  Led a unit of 40 volunteers and won the best volunteer award in the unit for the camp in December 2019.
- PowerPoint Presentation Competition, Sahodaya, Kerala, India   2017–2018
  Awarded First Prize at District level, where we had to create a presentation in one hour and present it based on the material provided.