

Avni Mittal

Email: avni.mittal2002@gmail.com / Mobile: +91-9667730877

Education

- **Semester Exchange, B.Tech CSE** - TU Darmstadt (2022 - 2023)
 - **B.Tech Computer Science and Engineering** - IIT Mandi (2020 - Present)
 - **Higher Secondary Education** - SRDAV Dayanand Vihar, Delhi (CBSE) - 2020
 - **Secondary Education** - SRDAV Dayanand Vihar, Delhi (CBSE) - 2018
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Relevant Courses

- Data Structures and Algorithms
 - Linear Algebra
 - Applied Database Practicum
 - Data Science I
 - Data Science II (Probability and Statistics)
 - Data Science III (Machine Learning)
 - Signals and Systems
 - Information and Database Systems
 - Computer Organization
 - Formal Language and Automata Theory
 - Computer Vision
 - Learning Robots
 - Probabilistic Graphic Models
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Technical Skills

- **Languages:** Python, C++ , JavaScript, PHP, Java
 - **Frameworks/Other Tools:** MySQL, MongoDB, Git, HTML, CSS, node.js, Tensorflow, Keras, OpenCV, Django, SpringBoot
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Work Experience

Clone Test Accounts, Intuit India - SDE Intern (Development Project) - 2023

- Analyzed, implemented, and deployed a complete feature migration for cloning test accounts for TurboTax.
- Integrated with multiple downstream services for advanced cloning features, conducted unit and Karate tests.

Explainable-AI, TU Darmstadt - Student Assistant (Research Project) - 2023

- Analyzed and implemented explainable AI methods and research papers.

- Compared the performance of XIA methods on adversarial images.

FIT-GAME, IIT Mandi - Research Intern (Development Project) - 2021

- Developed a Gamified Fitness Platform where users have to perform yoga poses to unlock playing games.
- Worked on model development for Pose detection and created a web-application for the Project.
- Selected as one of the top 10 teams for ACM-W National Hackathon 2021.
- Developed a classifier for yoga poses using LSTM and LRCN models, implemented using TensorFlow and Keras.

Evaluating Human Reinforcement Learning in Complex Environment, IIT Mandi - Research Intern (Research Project) - 2022

- Developed the human playing version of games by ML agents and analyzed human performance.
 - Collected data for subproject during the fellowship to develop LSTM models that will be applied to recordings of humans playing games in order to use reinforcement learning to predict the next move.
 - Developed a portal to allow IIT Mandi professors and students to collaborate on projects under the Academic Council.
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Projects

C-Arm Orientation Tracking - 2023

- Developed analytical and machine learning methods for C-arm orientation tracking to optimize surgical flow.
- Performed data collection, segmentation, model development, and testing of ML models.
- Completed the pipeline for object detection in medical machine learning.

Racing Game AI - 2022

- Implemented a racing car game using PyGame and developed a reinforcement learning algorithm using Deep Q Learning in PyTorch.

BOSCH'S Gender and Age Detection - 2022

- Developed an algorithm employing ESRGAN, Deepface, ImageAI, and Resnet models to identify the gender and age of humans in CCTV surveillance videos.

Credit Management System for IIT Mandi Students - 2021

- Developed a credit management system using Node.js, MongoDB, HTML, and Git.
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Achievements

- 2nd Position among second-year students for Fakathon (Fake Face classification) in Utkarsh'21

- 2nd Position in Hack36 Hackathon organized by IIT Mandi
 - 1st Position in ATLAS (Astrathon conducted by Space Cell of IIT Mandi) in Utkarsh'21
 - 1st Runner up in Vision Arcadia - Made automated Restaurant using Hand gesture detection through Machine Learning
 - Second Runner Up in the Build-A-Bot, Mask-Up Project Using Arduino and ML
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Responsibilities / Extra-Curricular Activities

- Part of Publicity, Sponsorship, and Design Team in AstraX'21 (Annual Space Fest of IIT Mandi)
 - Event Coordinator of Computational Astronomy Hackathon (AstraX'21 and AstraX'22)
 - Sponsorship Head for AstraX'22
 - Volunteer for Space and Technology Club, Photography, and Movie Making Club at IIT Mandi (2021)
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Additional Information - Languages: English (Fluent), Spanish (Intermediate) - Hobbies: Open-source contributions, hiking, and photography.