

Avani Gupta

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EDUCATION

IIIT HYDERABAD

B.TECH(HONS.) MAY 2022

CGPA: 8.42

MS BY RESEARCH APRIL 2023

Computer Science

RESEARCH INTERESTS

ML interpretability, Explainability,
XAI-based model improvement,
Concept-based approaches, Computer
Vision, Reinforcement Learning

SKILLS

Programming Languages: Python, C/C++

Libraries: PyTorch, Tensorflow, jax, keras,
OpenCV, gym, vowpal-wabbit, RLlib

Applications: Android-Studio, Firebase,
Heroku, Git, OpenGL, Matlab, Blender

Environments: Linux, Windows

ACHIEVEMENTS

- **Best Paper Award**, ICVGIP 2022.
- **SemEval 2022**, 10th rank in Chinese;
15th in English and Spanish NER
- Rank 14: **Amazon ML challenge 2021**
- Winner, Software edition, Smart India Hackathon, 2020
- Winner, **Microsoft's Mars Colonization Program**, 2020
- Microsoft Codess, 2020

POSITIONS

Teaching Assistant, 2021 TA for course
Statistical Methods in AI (SMIAI)

AiCrowd Organiser, 2021 Organised **ML
Battleground** at AI Crowd as part of Felicity:

Techno-cultural fest of IIIT H. Designed
problem statements and generated data.

Workshop Organizer, 2021 **ML workshop**,
took a session on GAN's in Felicity.

Volunteer, NeuRIPS, 2020

Events wing, 2020 Robotics club, IIIT-H

COURSEWORK

Computer Vision, Computer Graphics, Adv.
DL, Information-Retrieval and Extraction,
Adv. NLP, Optimization Methods, Statistical
Methods in AI, Game Theory, Data
Analytics, Data-Visualization, DIP, Mobile
Robotics, Software Systems, Distributed
Systems, Algorithms, Data-Structures, OS,
CN, Probability, Linear Algebra, Calculus.

EXPERIENCE

IBM RESEARCH | INTERN (AREAS: NLP, RL, BPM, AI)

May 2021 - August 2021 | Bangalore, India

Built a novel end-to-end system for Goal-Oriented Next Best Action Prediction in
Business Processes using Deep Reinforcement Learning. Submitted Paper: [Preprint](#) and
US. patent (currently in last stage after signing)

TALENTSPRINT | AI ML MENTOR

June 2022 - Sept 2022

Mentored working professionals in AI program run by TalentSprint.

CVIT, IIIT H | RESEARCHER (AREAS: ML INTERPRETABILITY, CV)

May 2020 - Present

Working on **ML interpretability** applied in Computer vision and graphics problems. Also
worked on **temporal consistency in 3D human reconstruction**.

AI HOME GROUP | INTERN (AREAS: CV, DIP)

Nov 2020 - April 2021

Worked on VR tour creation system from images taken by smartphone.

MICROSOFT | MENTEE (AREAS: AI, ALGORITHMS)

June 2020 - July 2020 | Winner all over India among the project work

Worked on Automated mars rover web game which uses shortest path heuristic
algorithms. (Jquery, HTML, CSS and javascript) [view project](#)

SCRAPSHUT | INTERN (AREAS: NLP, AI)

Jan 2020 - May 2020 | Hyderabad

Developed web-app for real-time fake news detection. Used Online learning models for
prediction, wrote custom web-scraper. (Django, Keras) [view project](#)

ROBOTICS RESEARCH CENTER | INTERN (AREAS: RL, ROBOTICS)

Nov 2019 - Jan 2020 | Hyderabad

Implemented Reinforcement Learning algorithms used in Robotics. (Gym) [view project](#)

PUBLICATIONS

Goal-Oriented Next Best Activity Recommendation using Reinforcement Learning
(under review)

Interpreting Intrinsic Image Decomposition using Concept Activations | ICVGIP, 2022
(oral, Best paper award)

CitRet: A Hybrid Model for Cited Text Span Retrieval | COLING, 2022

**Abstract representation of visual stimuli from neural recordings using deep
generative models** | Poster, ESI Sync, 2020

Fake News Detection using Deep Learning based Natural Language Processing |
Poster, HiPC, 2019

PROJECTS

- **Smart Library Management System** | SIH 2020 | Winner all over India
End to end Library Management app: auto-tagger for books, recommendation
engine, QR based issuing of books, admin dashboard, chatbot. (Flutter, Firebase)
- **DataSynth**: Customizable synthetic data generation used for training AI models;
integrated webapp. (Unity3D, Flask, SwaggerAPI) [Devpost submission](#)
- **NER** | SemEval, 2022. Developed BERT based CRF with BiLSTM models.
- **Wikipedia Search Engine**: Search using advanced queries on Wikipedia corpus.
- **Adversarial Neural Cryptography**: LSTM-based encryption. (Tensorflow)
- **Stereo reconstruction and Non-linear optimization** (Open3D)
- **Pose Graph Optimization for SLAM** (g2o, jax)
- **DHT based DNS**: Domain Name System based on Distributed Hash Table. (python)
- **Style Transfer**: Transfer style of images using auto-encoder. (PyTorch)
- **Image Background editing**: using poisson matting. (OpenCV)
- **Interactive data-visualization**: India State-wise factors visualization. (Bokeh)