

Chaitanya Patel

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EDUCATION

Stanford University 4.1/4
PhD Student in Computer Science Sept 2021 – Present

IIIT-Hyderabad, India **Batch Rank 1, 9.85/10**
Bachelor of Technology (with Honours) in Computer Science and Engineering Aug 2015 – May 2019

EXPERIENCE

Meta Reality Lab Jun 2022 – Sept 2022
Research Scientist Intern Pittsburgh, USA

- Mentored by Shih-En Wei.
- Worked on supervised descent method for highly accurate body pose estimation from single image.

Stanford University Sept 2021 – Present
Research Assistant Stanford, USA

- Working on video-conditioned future dynamics prediction. Mentored by Dan Yamins.
- Worked on differentiable physics for physically plausible human motion estimation from videos. Mentored by Jiajun Wu and Karen Liu.

Google Research India Jan 2020 – Sept 2021
Pre-doctoral Researcher (Brain Resident) Bangalore, India

- Mentored by Dr. Varun Gulshan
- Worked on Self-supervised learning methods to leverage large amount of satellite imagery data to improve downstream ML remote sensing tasks like land-cover mapping, riverbed segmentation.

RVH lab, Max Planck Institute for Informatics May 2019 – Nov 2019
Research Intern Saarbruecken, Germany

- Mentored by Dr. Gerard Pons-Moll
- Developed a fast data-driven garment model which is realistic, differentiable and easy to animate. Simulated dataset of real 3D garments on people using physics-based simulation.
- Our work *TailorNet* accepted for **Oral** presentation at CVPR 2020. – Project Page

CVIT, IIIT Hyderabad May 2017 – Apr 2019
Honours Research Student Hyderabad, India

- Mentored by Dr. Avinash Sharma
- Worked on textured 3D reconstruction using calibrated system of Microsoft Kinect sensors. – Link
- Worked on deep learning methods for real-time 3D reconstruction of human body from single image.

PUBLICATIONS

1. **Chaitanya Patel***, Shashank Sharma*, Varun Gulshan. “Evaluating Self and Semi-Supervised Methods for Remote Sensing Segmentation Tasks” — ArXiv
2. **Chaitanya Patel***, Zhouyingcheng Liao*, Gerard Pons-Moll. “Tailornet: Predicting Clothing in 3D as a Function of Human Pose, Shape and Garment Style” CVPR 2020 **ORAL** — Project Page
3. Abhinav Venkat, **Chaitanya Patel**, Yudhik Agrawal, Avinash Sharma. “HumanMeshNet: Polygonal Mesh Recovery of Humans” ICCV Workshop 3DRW 2019 — Project Page

* Equal Contribution

ACHIEVEMENTS

- Institute and Program Gold Medal of IIIT-H – 1st Rank in the batch with GPA 9.85 / 10 .
- Dean's List 1 at IIIT-H – top 5% in all semesters of Bachelors.
- Rank 34 in ACM ICPC 2018 India online round.
- Rank 56 in JEE Mains 2015 among 1.3 million students.
- Rank 1 in Gujarat State Education Board High School Exam among 80k students.

TECHNICAL SKILLS

Languages: Python, C/C++, Matlab, Bash, HTML/CSS, JavaScript

Libraries: TensorFlow, PyTorch, Keras, Matplotlib

Frameworks & Tools: Git, L^AT_EX, OpenGL, WebGL, Blender, Meshlab, Django

RELEVANT COURSES

At Stanford	Probabilistic Graphical Models (cs228), Convex Optimization (ee364a), Graphics in the Era of AI (cs348i), Machine Learning with Graphs (cs224w)
Machine Learning	Statistical Methods in AI, Topics in ML, Optimization Methods
Vision & Graphics	Computer Vision, Digital Image Processing, Computer Graphics
Mathematics	Discrete Maths, Probability & Complex Numbers, Number Theory & Cryptology
Computer Systems	Compilers, Operating Systems, Distributed Systems, Database Systems, Networks

TEACHING

Designed and evaluated assignments, graded exams, conducted tutorials and mentored course projects of

Computer Programming (Monsoon'17)	Data Structures (Spring'18)
Statistical Methods in AI (Monsoon'18)	Computer Vision (Spring'19)

OTHER PROJECTS

Image Matching with Spectral Analysis	Implemented Joint Spectral Correspondence proposed in a CVPR 2013 paper to match the images with disparate appearance arising from dramatic illumination Link
Relative Attributes for Zero Shot Learning	Implemented Visual Relative Attributes and Rank SVM for image classification based on ECCV-2011 best paper 'Relative Attributes' Link
Consistent Bellman Operators	Implemented optimality preserving consistent Bellman operators proposed in 'Increasing the Action Gap' and compared against DQN Link
Visual Attention for Image Captioning	matched state-of-the art accuracy on MSCOCO – Link
Content Aware Image Resizing	using Seam Carving algorithm – Link
Bloxorz (3D Game)	similar to Miniclip Bloxorz implemented in OpenGL 3.0 – Link
VAE for Image Generation	generative model and latent space visualization – Link
AI Agent for Ultimate Tic-Tac-Toe	using Monte Carlo Search with Upper Confidence Bound – Link
Reinforcement Learning Algorithms	implemented Policy gradient, DQN, Double-DQN – Link
Compiler and Interpreter	using Flex scanner, Bison parser and LLVM code generator – Link
Data Structures	2D Segment-trees, 2-3 Trees, AVL Trees, Heaps, Tries implemented in C – Link
IIIT Placement Portal	A Django portal used by students and recruiters for job-placements of 2017 See my GitHub for more projects

ALGORITHMIC CODING

- **ACM ICPC:** Rank 84 in India Regionals and Rank 34 in India Online round.
- **Google Kickstart:** World Rank 82 in Round-G 2017 and World Rank 98 in Round-C 2018.
- **Codechef** 5-star profile and **Codeforces** Expert profile with max rating of 1844.