Chaitanya Patel

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Education

Stanford University
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

Gujarat State Education Board, India — 96.3/100
High School Education — Jun 2010 – May 2015

Experience

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.
- Set up code infrastructure for satellite data processing and large scale ML experimentation.

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

- 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
- Calibrated 3D Capture: Worked on a calibrated system for textured 3D reconstruction from point cloud and RGB images obtained from Microsoft Kinect sensors. – Link
- Deep 3D Reconstruction: Worked on deep learning methods for real-time 3D reconstruction of human body from single image. Co-authored a paper published in ICCV 2019 Workshop 3DRW. – Project Page

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. Abbhinav 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.
- Awarded conference grant by Google to attend CVPR 2020.
- 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.

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)

Technical Skills

Languages: Python, C/C++, Matlab, Bash, HTML/CSS, JavaScript
Libraries: TensorFlow, PyTorch, Keras, Matplotlib
Frameworks & Tools: Git, LaTeX, OpenGL, WebGL, Blender, Meshlab, Django

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

Relevant Courses

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

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.