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Yudhik Agrawal

Education

2016 - present **B.Tech & M.S (By Research) in Computer Science**, *International Institute of Information Technology*, Hyderabad.
*CGPA : **8.95**/10 (**B.Tech**), **9.75**/10 (**M.S**)*

2014 - 2016 **Senior Secondary**, *CBSE*, DAV Public School, Gurgaon, Haryana.
*Percentage: **95.0***

2012 - 2014 **Senior Secondary**, *CBSE*, Rotary Public School, Gurgaon, Haryana.
*CGPA: **10.0***

Experience

Jan'20 - Present **Research Assistant**, Cognitive Science Lab, IIIT-H.
Currently working with Prof. Vinoo Alluri, on using music-induced movements to identify individual traits and also, improving song recommendation system.

May'18 - July'20 **Research Assistant**, Center for Visual Information Technology, IIIT-H.
Worked with Prof. Avinash Sharma, on 3D-Human Body Reconstruction and generating Temporally coherent Sequence of Human Action.

May'20 - June'20 **Summer Analyst**, Goldman Sachs, Bengaluru, India.
Worked on **Data Ingestion Enhancements** in Data Pipeline Framework, and did further exploration which would benefit project in future.

May'19 - May'20 **Research student**, Robotics Research Center, IIIT-H.
Worked with Prof. K. Madhava Krishna, on avoiding Drone Collisions by Path Planning after doing 3D reconstruction of the surrounding obstacles(eg. Humans) which need not be static.

Monsoon'18- Spring'20 **Teaching Assistant**, IIIT-H.
Computer Programming | **Optimization Methods** | **Graphics** | **Digital Signal Analytic and Apps.**
Involves grading, making problem sets, taking lab sessions and tutorials for over 150 students.

Publications

ECIR'21 **Transformer-based approach towards music emotion recognition from lyrics**,
Yudhik Agrawal, *Ramaguru Guru Ravi Shanker, Vinoo Alluri*
We proposed a Transformer-based network architecture that, given the lyrics, outputs the classification of Emotion Quadrants, in addition to Valence and Arousal Hemispheres..

WACV'21 **GlocalNet: Class-aware Long-term Human Motion Synthesis**,
*Neeraj Battan**, ***Yudhik Agrawal****, *Veeravalli Saisooryarao, Aman Goel, Avinash Sharma*
We proposed a two-stage activity generation pipeline to synthesize a long-term (> 6000 ms) human motion trajectory across a large variety of human activity classes.

ISMIR'20 **Towards Multimodal MIR: Predicting individual differences from music-induced movement**,
Yudhik Agrawal, *Samyak Jain, Emily Carlson, Petri Toivanen, Vinoo Alluri*
We proposed a Machine-Learning model that predicts individual traits from music-induced movement patterns and further finds associations between dance movements and traits.

3DRW'19 ICCVW **HumanMeshNet: Polygonal Mesh Recovery of Humans**,
Abbhinav Venkat, Chaitanya Patel, ***Yudhik Agrawal****, Avinash Sharma*
We proposed a multi-branch multi-task HumanMeshNet network that simultaneously regress to the template mesh vertices as well as body joint locations from a single monocular image.

Projects

Deep 3D-HM GUI Developed a Tk GUI toolkit which finds 3D mesh of a human body from a monocular RGB Image/Video using state-of-the-art Deep Learning network.

Stack Overflow UserQuery Developed a search bar on top of the StackOverflow API which provides more relevant thread results based on the search and also re-order the answers based on various NLP techniques like text-similarity(USE), statistical analysis and semantic analysis.

Amdocs Vidalysis Developed a Software-as-a-Service which can analyze/interpret the video, trimming relevant part of the video and can also search through video using image or text.

Tic-Tac-Toe Bot Developed a bot capable of playing advanced version of Extreme Tic-Tac-Toe using alpha beta pruning, custom heuristics and zobrist hashing.

Other Projects
- Twitter Sentimental Analysis including WordCloud and HeatMap
- **Various Games**: Tunnel Rush, League of Zelda(3D), Bomberman
- **Various Hackathons**: Megathon: Regional TOR, Codefundo: Disaster-Management
- **Computer Vision**: Image Quilting [SIGGRAPH] and Domain-invariant Image Repr. [ICLR]

Achievements

Amdocs'19 Ranked **1st** in the Amdocs HackFest among more than 5000 teams that participated.

Academics Dean's list awardee for excellence in academics, awarded to top 5% of the batch.

Google AI Selected for the **Google AI Summer School, 2020** - Top 50 students in India.

ACM-ICPC Member of team **Brahmasmi** which secured **35**th Rank in 2019 online round.

Sport Programming Codechef Handle: yudhik, Rating: **2075**(best).
Codeforces Handle: yudhik, Rating: **1946**(best).

Kickstart Secured rank **159** in Google Kickstart Round-F 2019.

Alexa'18 Ranked **3rd** in the Techgig Alexa CodeGladiator among more than 3000 teams that participated.

JEE-MAINS Ranked 1285 in JEE Mains out of nearly 1.3 million students who appeared.

Relevant Coursework

Computer Science Statistical Methods in AI, Computer Vision, Data Structures, Algorithms, Optimization Methods, Graphics, Artificial Intelligence, Computer Programming, Operating Systems, Databases Systems, Distributed Systems, Music & Technology, Computer Architecture, IT Workshop, Mobile Robotics, System Design and Project, Advanced Computer Networks, Digital Signal Processing, Digital Image Processing, Principle of Information Security

Mathematics Discrete Mathematics, Graph Theory, Group Theory, Differential Equations, Complex Analysis

Technical Skills

OS Linux, Windows

Languages C, C++, Python, Bash, MATLAB, Java

DL Libraries PyTorch, Tensorflow

Web Tech Flask, jQuery, Javascript, Bootstrap, Django

Miscellaneous AWS, Git, MySQL, OpenGL, Apache-Flink, ROR, Meshlab