ANURAG GHOSH

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EDUCATION

M.S. by Research, Computer Science
IIIT Hyderabad, India — Jul 2017 -
Adviser: Prof. C.V. Jawahar, Centre for Visual Information Technology (CVIT)

B. Tech. (Honors), Computer Science — *GPA: 8.90/10*
IIIT Hyderabad, India *(Graduated within top 10% of my batch)* — Aug 2013 - Jul 2017

PUBLICATIONS

* **Analyzing The "Big Three": Mining Tennis Strategies from Broadcast Videos**, Rakesh Jasti, **Anurag Ghosh**, C.V. Jawahar, International Joint Conference on Artificial Intelligence (IJCAI-ECAI), 2018 *(Submitted)*
* **Towards structured analysis of broadcast badminton videos**, **Anurag Ghosh**, Suriya Singh, C.V.Jawahar, Winter Conference on Applications of Computer Vision (WACV), 2018 [Paper]
* **SmartTennisTV: Automatic indexing of tennis videos**, **Anurag Ghosh**, C.V.Jawahar, National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG), 2017 **(Best Paper)** [Paper]
* **Dynamic Narratives for Heritage Tour**, **Anurag Ghosh***, Yash Patel*, Mohak Sukhwani, C.V.Jawahar, 3rd Workshop on Computer Vision for Art Analysis, European Conference on Computer Vision (ECCV-W), 2016 (*Equal Contribution) [Paper] [Press]

EXPERIENCE

Research Assistant, CVIT — May 2015 -

Honor's and Master's student in Computer Vision working with Prof. C.V. Jawahar

Research Engineer (Intern), Verisk Analytics — May 2016 - Jul 2016

Project involved Survey, Analysis and Benchmarking of Image Forensics Algorithms.
Surveyed blind image manipulation detection techniques. Created a large artificial dataset. Wrote a generic framework for benchmarking. Experimented with neural network based architectures to fuse probabilistic maps from surveyed algorithms to improve detection rates by 11%. (Report)
Supervisor: Dr. Maneesh Kumar Singh, Director, Image and Video Analytics

Open Source Contributor, Boost C++ Libraries

Initiated the development of C++ Spreadsheet Automation Library.
The cross-platform library uses Excel (OLE) and Libreoffice API backend to perform simple spreadsheet tasks like filling tables and creating charts programmatically.
Mentor/Evaluator: Antony Polukhin, Russian Representative, ISO C++ Standards Committee
Project part of **Google Summer of Code** and **Boost Summer of Code**

Teaching Assistant, IIIT Hyderabad

Designed & graded assignments, evaluated exams, conducted tutorials and mentored projects.

Foundations of AI and ML (Industry Course)	Spring 2018
Topics in Machine Learning (CS975)	Monsoon 2017
Intro to Machine Learning (SMAI) (CSE471)	Spring 2017
Intro to Discrete Mathematics (IMA101)	Monsoon 2015, 2016
Computational Thinking and Algorithmic Problem Solving (STEP)	Summer 2015

ACHIEVEMENTS

Best Paper Award, SmartTennisTV: Automatic indexing of tennis videos, NCVPRIPG (2017)
Dean's Research Award: For exceptional undergraduate research work at IIIT Hyderabad (2016)
Dean's List for Academic Excellence: Conferred 6 times out of 8 semesters. (2013-2017)
Runner Up, Microsoft Code.Fun.Do: Institute level hackathon organized by Microsoft (2015)

MAJOR PROJECTS

Aligning Fine-Grained Action Videos Using Weak Supervision CVIT
supervised by Prof. C.V. Jawahar and Dr. Karteek Alahari (INRIA)

- We curate a crowd-sourced dataset of tennis action labels and their match videos.
- We propose a new architecture to align and temporally segment fine grained actions in the dataset. We also evaluate on the recently released Badminton Olympic Actions Dataset (in our WACV 2018 paper).

Analyzing The "Big Three": Mining Tennis Strategies from Broadcast Videos CVIT
supervised by Prof. C.V. Jawahar

- We utilize computer vision methods to track players across points and detect in-point events.
- We mine data this data for Grand Slam Matches for Federer, Nadal and Djokovic to perform spatiotemporal analysis and compare their rivalries.

Automatic Essay Grader using Spectral Graph Diffusion IIIT Hyderabad
supervised by Prof. Avinash Sharma

- Modeled a generalized essay grader closely matching human graders.
- Employed a variant of Spectral Graph Diffusion which uses Heat Matrices.

Processor Simulator and Assembler IIIT Hyderabad
supervised by Prof. Madhava Krishna

- Worked on a teaching tool which simulates a simple processor design. Students can write assembly code for the processor, assemble it and observe the clock cycles.
- Expanded course material by adding content on Microprogram Sequencers for Processor Design course.

SKILLSET

Languages: C++, Python, C, MATLAB, Javascript, Java
ML/Vision: OpenCV, PyTorch, Keras, Scikit-learn, Caffe (basic), Tensorflow (basic)
Web/Mobile: Django, NodeJS, Android
Misc: SLURM, NetworkX, SQL, LLVM (Basic)

POSITIONS OF RESPONSIBILITY

Co-organizer, Auto-rickshaw Detection Challenge, NCVPRIPG (2017)
Systems Administrator, CVIT-HPC cluster operating on SGE/SLURM, CVIT (2016-)
Member (Nominated), Academic Disciplinary Committee, IIIT-H (2017-)
Help Cell Tutor, Computer Organization (Spring'17), Computer Programming (Monsoon'17)
Member, Students Welcoming Committee, IIIT-H (2015-2017)
Associate Editor, Ping! (College Magazine), IIIT-H (2015-2016)
Student Placements Coordinator, IIIT Hyderabad (2016-2017)
Coordinator, Felicity LitCafe (Literary Fest) (2015-2016)
Web Administrator, Fresher's Registration Website, IIIT-H (2014-2015)
Representative, Students Parliament, IIIT-H (2013-2014)