Anirudh Chakravarthy

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Objective: Computer Vision Internships for Summer 2022

Education

Carnegie Mellon University, School of Computer Science   **Pittsburgh, PA**
Master of Science in Computer Vision (Robotics Institute)   *Dec 2022*

Birla Institute of Technology and Science   **Pilani, India**
Bachelor of Engineering in Computer Science (Minor: Data Science)   *May 2021*
GPA: 9.55/10; Department Rank: 9/153; BITS Pilani Merit Scholarship

Experience

Harvard University   **Boston, MA**
Research Intern (mentor: Dr. Hanspeter Pfister)   *May 2020 – July 2021*
- Benchmarked coord-conv, spatio-temporal attention, and anti-aliased convolutions for video instance segmentation
- Implemented an inter-frame attention mechanism in PyTorch to propagate missing object instances in a video track; achieved state-of-the-art performance on YouTube-VIS benchmark with a 5% improvement on Mask R-CNN pipeline
- Developed a transformer-based tracking and segmentation method by using transformer encoded embeddings from previous frames as tracking cues for the current frame; obtained 33.1% mAP on YouTube-VIS benchmark

National University of Singapore   **Singapore**
Research Intern   *Feb 2021 – July 2021*
- Benchmarked adversarial defense algorithms such as SOAP and OSAD to examine robustness against severe perturbations
- Ideated a reverse-PGD pipeline by iteratively modifying the perturbed image to minimize the loss over the input image
- Leveraged simCLR to purify the attacked image by minimizing contrastive loss between clean and perturbed images

University of Illinois at Urbana-Champaign   **Champaign, IL**
Research Intern (mentor: Dr. Narendra Ahuja)   *May 2020 – Dec 2020*
- Examined eye tremor, pupil dilation, face colour variation, and wrist micromotion for heart rate estimation in the real world
- Designed an SVM-based anaemia detection method using pixel values and Local Binary Patterns from eyes and tongue
- Led a 4 member research sub-team which was awarded a $10000 research grant from C3.AI

Asian Paints   **Mumbai, India**
Summer Intern   *May 2019 – July 2019*
- Ideated a home decor visualizer which was commercially launched in Sept'20 and developed the visualization module
- Trained a CASENet model on a 400 image dataset to perform Semantic Edge Detection and segment wall edges

Publications

Anirudh S Chakravarthy, Won-Dong Jang, Zudi Lin, Donglai Wei, Song Bai, and Hanspeter Pfister. Object Propagation via Inter-Frame Attentions for Temporally Stable Video Instance Segmentation. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**) Workshops*, 2021.

Anirudh S Chakravarthy*, Praveen Ravirathinam*, and Roshan Roy*. MRSCAtt: A Spatio-Channel Attention-Guided Network for Mars Rover Image Classification. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**) Workshops*, 2021.

Skills

Programming Languages: Python, C, Java
Frameworks: PyTorch, Keras, OpenCV, TensorFlow, Numpy, Pandas

Achievements

External Reviewer – British Machine Vision Conference   **June 2021**

Schneider Go Green 2020 – Global Finalist   **May 2020**
- Among 8 teams globally to qualify for the global finals and Greater India winner among 2000+ submissions

Leadership

Founder – AI and Robotics Society, BITS Pilani   **Aug 2020 – May 2021**
- Organized a reading group with 20 members for weekly discussions on latest Deep Learning papers
- Mentored 5 undergraduates on computer vision research projects

Founding member – Sally Robotics, BITS Pilani   **Aug 2018 – May 2021**
- Co-founded the autonomous navigation research group and led the Computer Vision team of 15 members
- Received a funding of INR 150000 to pursue further autonomous navigation research

Teaching Assistant – BITS Pilani   **Aug 2019 – May 2020**
- Tutored 50+ students in Database Systems and Introductory C Programming