Shruti Gullapuram

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Github: https://github.com/gshruti95

Education

Master of Science in Computer Science **Expected Graduation: May 2019**
University of Massachusetts Amherst
Coursework: Computer Vision, Machine Learning, Neural Networks (Deep Learning)

Bachelor of Technology in Electronics and Communication Engineering **2013-2017**
International Institute of Information Technology Hyderabad *CGPA: 7.9/10*
Research Award 2016-17, Dean's Merit List for 3 consecutive semesters, Spring'16 - Spring'17
Teaching Assistant for the course Basic Electronic Circuits, Spring '16
Coursework: Data Structures, OS, Algorithms, Computer Vision, Image Processing, Data Mining, Speech Systems

Publications & Presentations

"Affect Recognition in Ads with Application to Computational Advertising", **ACM International Conference on Multimedia** (ACM MM, 2017) (**7.5% acceptance rate for oral presentation; One of two first authors**)
"Evaluating Content-centric vs User-centric Ad Affect Recognition", **ACM Int'l Conference on Multimodal Interaction** (ICMI, 2017) (**Poster presentation; Second author**)
"Shot Classification from News Videos", **International Conference on Multimodal Communication** (ICMC, 2017) (Presented at Osnabruck University, Germany)

Research & Experience

Affect Recognition for Computational Video Advertising
Undergraduate Independent Study, Advisor: Dr.Subramanian Ramanathan *Sep'16-Apr'17*
- Developed a system that estimates the state of engagement (arousal) and emotion (valence) in ads perceived by viewers
- Based on the estimated affect, ads were inserted using an optimization framework built on consumer psychology rules, with the goal of maximizing ad recall and enhancing viewer experience
- Performed user study to conclude that this computational approach can lead to better video advertising. Led to two international publications.
- Current work focuses on using multiple modalities, such as EEG, and experimenting with different DNN architectures

Student Developer, Google Summer of Code 2016
Red Hen Lab, (Blog: http://bit.ly/2hrI7N9) *May-Aug'16*
- Built a visual recognition pipeline using *Python* for the UCLA NewsScape dataset which tags news videos with the identified camera shot type (anchor/news person, weather report, etc.), scene type, and detected objects
- Experimented with several Convolutional Neural Network (CNN) architectures using the *Caffe* framework, compiled a training dataset of 10,000 images, and employed transfer learning to achieve 85% optimal accuracy (in the domain of news shot classification)
- Deployed the entire pipeline on a high performance computing cluster using SLURM

Co-Mentor, Google Summer of Code 2017
Red Hen Lab *May-Aug'17*
- Co-mentored an inter-disciplinary project on "Neural Network Models to Study Framing and Echo Chambers in News"

Technical Skills

Programming/Scripting Languages: Python, Matlab, C, C++, Bash (basic)
Frameworks & Libraries: Caffe, TensorFlow (familiar), OpenCV (familiar)
OS: Linux, Windows

Academic Projects

Soccer Video Analytics
- Developed a video processing pipeline in *Matlab* for broadcast soccer videos, using image processing techniques
- Estimated camera angle, mapped screen to field coordinates, detected and tracked multiple players to generate insights into game play

Deep Learning for Breast Cancer Assessment
- Created classifier using *Python* to assess risk of cancer for 10,000 mammogram images of the DDSM dataset
- Trained Convolutional Neural Network on GPU and achieved 87% accuracy for benign vs. malignant classification of ROIs

Gaze Driven Video Editing
- Designed video retargeting model in *Matlab* to fit videos to specified screen aspect ratios with cues from Region of Interest (ROI) of gaze points collected from eye-tracking data
- Explored algorithms such as b-spline curves, L1 norm convex optimization and used RANSAC to optimize a cropping window path

Activities

Google Code-In '16-'17 Mentor, CCExtractor: Mentored high school students interested in open source to perform coding and quality assurance tasks
Community Service: Teaching volunteer for STEM subjects at Ashakiran, an organization for underprivileged high school students
Music:Trained classical flutist