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

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

Publications & Presentations

- Abhinav Shukla, **Shruti Gullapuram**, Harish Katti, Karthik Yadati, Mohan Kankanhalli, Ramanathan Subramanian, "Affect Recognition in Ads with Application to Computational Advertising", ACM Int'l Conference on Multimedia (**ACM MM**), 2017 (**Oral, 7.5% acceptance rate**)
  http://dx.doi.org/10.1145/3123266.3123444
- Abhinav Shukla, **Shruti Gullapuram**, Harish Katti, Karthik Yadati, Mohan Kankanhalli, Ramanathan Subramanian, "Evaluating Content-centric vs User-centric Ad Affect Recognition", ACM Int'l Conference on Multimodal Interaction (**ACM ICMI**), 2017
  http://dx.doi.org/10.1145/3136755.3136796
- "Shot Classification from News Videos", International Conference on Multimodal Communication (**ICMC**), 2017 (Presented at Osnabruck University, Germany)

Technical Skills

Programming/Scripting Languages: Python, Matlab, C, C++, Bash
Frameworks & Libraries: Caffe, Keras, Tensorflow (familiar), Scikit-learn, OpenCV

Research & Experience

Undergraduate Independent Study
Affect Recognition in Advertisements, Advisor: Dr.Subramanian Ramanathan *Sep'16-Apr'17*
- Built a computational model that estimates the state of engagement (arousal) and emotion (valence) in viewers while watching multimedia content, particularly ads
- Trained neural networks on collected EEG data, fine-tuned a deep CNN, and used multi-task learning to achieve optimal classification results
- 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

Student Developer, Google Summer of Code 2016
Red Hen Lab, (Blog: http://bit.ly/2hrI7N9) *May-Aug'16*
- Developed 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 CNN architectures using the *Caffe* framework, compiled a training dataset of 10,000 images, and employed transfer learning. Achieve an F1-score of 85%
- Deployed the pipeline on a high performance computing cluster

Academic Projects

Soccer Video Analytics
- Developed a video processing pipeline in *Matlab* for broadcast soccer videos, applying 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:Classical flutist