

# Subarna Tripathi

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## Research Experience

- Jun 2013 – present **Graduate Research Assistant**, UC SAN DIEGO.  
My research interests include discriminative and generative models for applications such as object detection, semantic and instance segmentation in images and videos.

## Professional Experiences

- Sept 2016– to Dec 2016 **Research Intern**, QUALCOMM MULTIMEDIA R&D , San Diego, USA.  
A low-complexity Object-Detection model using Deep CNN with TensorFlow-Slim
- Jun 2016– to Sept 2016 **Research Intern**, GOOGLE RESEARCH AND MACHINE INTELLIGENCE, Seattle, USA.  
Person instance segmentation with human pose using Deep CNN with TF-Slim.
- Jun 2015 – Sept 2015 **Research Intern**, MICROSOFT RESEARCH, Redmond, USA.  
Self-calibrating eye-gaze tracking for head mounted virtual reality systems.
- May 2006 – Oct 2012 **Technical Leader**, STMICROELECTRONICS, Noida and Bangalore, India.  
Computer Vision, Machine Learning, Video Compression, Computational Photography research projects in the Advanced System Technology (AST) group.
- Jul 2005 – May 2006 **Member of Technical Staff**, INTERRA SYSTEMS, Noida, India.  
I developed TraceViewer, MP4/3GPP analyzer for Interra's Vega Video Analyzer.

## Education

- 2013–present **PhD Candidate, Computer Vision**, *University of California San Diego*, USA.  
Advisors Professor Truong Nguyen and Professor Serge Belongie
- 2007–2011 **MS Research, Electrical Engineering**, *Indian Institute of Technology, Delhi*, India.
- 2001–2005 **BTech, Computer Science and Engineering**, *West Bengal University of Technology*, India.

## Skill Set

- Topics COMPUTER VISION, OBJECT DETECTION AND SEGMENTATION, MACHINE LEARNING, GENERATIVE AND DISCRIMINATIVE MODELS, DEEP LEARNING
- Languages C, PYTHON, MATLAB
- Libraries TENSORFLOW, THEANO, OPENCV

## Selected Publications

- Papers [10] **Pose2Instance: Harnessing Keypoints for Person Instance Segmentation**, *S. Tripathi, M. Collins, M. Brown, and S. Belongie*, arXiv preprint arXiv:1704.01152.
- [9] **LCDet: Low-Complexity Fully-Convolutional Neural Networks for Object Detection in Embedded Systems**, *S. Tripathi, G. Dane, B. Kang, V. Bhaskaran, and T. Nguyen*, CVPRW, 2017.
- [8] **Low-Complexity Object Detection with Deep Convolutional Neural Network for Embedded Systems**, *S. Tripathi, B. Kang, G. Dane, and T. Nguyen*, To appear in SPIE, 2017.
- [7] **Precise Recovery of Latent Vectors from Generative Adversarial Networks**, *Z.C. Lipton, and S. Tripathi*, ICLR 2017, Workshop track.
- [6] **A Statistical Approach to Continuous Self-Calibrating Eye Gaze Tracking for Head-Mounted Virtual Reality Systems**, *S. Tripathi, and B. Guenter*, WACV 2017, (**The Best Paper Award**).
- [5] **Context Matters : Refining Object Detection in Video with Recurrent Neural Networks**, *S. Tripathi, Z. Lipton, S. Belongie, and T. Nguyen*, BMVC, 2016.

- [4] **Detecting Temporally Consistent Objects in Videos through Object Class Label Propagation**, *S. Tripathi, S. Belongie, Y. Hwang, and T. Nguyen*, WACV, 2016.
- [3] **Semantic Video Segmentation : Exploring Inference Efficiency**, *S. Tripathi, S. Belongie, Y. Hwang, and T. Nguyen*, IEEE ISOC, 2015.
- [2] **Real-time Sign Language Fingerspelling Recognition using Convolutional Neural Networks from Depth map**, *B. Kang, S. Tripathi, and T. Nguyen*, ACPR, 2015.
- [1] **Improving Streaming Video Segmentation with Early and Mid-Level Visual Processing**, *S. Tripathi, Y. Hwang, S. Belongie, and T. Nguyen*, WACV, 2014.
- Posters [3] **Continuous Self-Calibrating Eye Gaze Tracking for Virtual Reality Systems**, *S. Tripathi, and B. Guenter*, CVPR workshop WiCV, 2017.
- [2] **Context Matters: Refining Object Detection in Video with Recurrent Neural Networks**, *S. Tripathi, Z. Lipton, S. Belongie, and T. Nguyen*, WiML, collocated with NIPS, 2016.
- [1] **Beyond Semantic Image Segmentation : Exploring Efficient Inference in Video**, *S. Tripathi, S. Belongie, and T. Nguyen*, CVPR Workshop WiCV, 2015.
- Patents [5] **Digital video encoder system, method, and non-transitory computer-readable medium for tracking object regions**, *S. Tripathi, M. Mathur, and S. chaudhury*, US 9,626,769 B2, Grant.
- [4] **GOP-Independent Dynamic Transcoder Bitrate Controller**, *S. Tripathi, and E. Piccinelli*, US 8,913,658 B2, Grant.
- [3] **A Method and System for Determining A Macroblock Partition For Data Transcoding**, *S. Tripathi, K. Saha and E. Piccinelli*, US 9,197,903 B2, Grant.
- [2] **Method for Detecting a Straight Line in a Digital Image**, *L. Magri, B. Rossi, S. Tripathi, P. Fragneto and E. Piccinelli*, US 9,245,200 B2, Grant.
- [1] **System and method for object based parametric video coding**, *S. chaudhury, M. Mathur, A. Khandelia, S. Tripathi, B. Lall, S. Dutta Roy, and S. Gorecha*, US 8,848,802 B2, Grant.
- Book Chapter **Animation and Flash Overview**, *Computer Graphics Multimedia and Animation*, Dr. Malay Pakhira, Prentice Hall of India.

## Co-curricular and Extra-curricular Activities

- Area Chair **Women in Machine Learning Workshop (WiML)**, CO-LOCATED WITH NIPS, 2017.
- Scholarships **National Scholarship of Merit**, 1999, 2001, India.
- Awards **Google Grace Hopper Celebration Award, Women in Machine Learning travel scholarship**, 2016.
- Mentoring **Undergrad Students**, *TCS-best project award for YUV sequence Viewer*, 2007.
- Reviewer **SIGGRAPH, IEEE HMS, Other International conferences**.
- Courses **Computer Vision, Machine Learning, Pattern Recognition, Image Processing**.
- Summer **DLSS & RLSS'17 Montreal, ICVSS'11 Sicily, IMLSS'10 Bangalore**.
- Schools

## Websites

- Patents **All patents**.
- Publications <http://acsweb.ucsd.edu/~stripath/research/publication.html>.
- SE(3) Group <https://vision.cornell.edu/se3/people/subarna-tripathi/>.
- Linkedin <https://www.linkedin.com/in/subarnatripathi>.
- Github <https://github.com/subarnatripathi>.
- Homepage <http://acsweb.ucsd.edu/~stripath/research/>.

## Languages

English, Bengali, Hindi