

Suyog Dutt Jain

CONTACT INFORMATION

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Websites: Academic page | Google scholar

RESEARCH INTERESTS

Computer vision, machine learning, human computation & crowdsourcing, data visualization.

EDUCATION

The University of Texas at Austin, Austin, Texas

PhD in Computer Science **08/2011 – 05/2017**

- Human Machine Collaboration for Foreground Segmentation in Images and Videos
- Advisor: Dr. Kristen Grauman

MS in Computer Science **08/2009 – 08/2011**

Manipal University, India

Bachelor of Engineering in Computer Science **09/2004 – 05/2008**

WORK EXPERIENCE

PathAI

Senior Machine Learning Scientist **02/2019 – current**

- Developing deep learning models for cancer diagnosis using pathology images.
- Built an automated slide QC algorithm to detect artifacts and quality issues in pathology images irrespective of stain and organ types.
- Built an universal nucleus detector which was able to detect cell nuclei in pathology images irrespective of stain and organ types.
- Served as research lead on projects related to PathAI data platform with focus on improving the speed and accuracy of labeled data.

CognitiveScale

Machine Learning Research Scientist **03/2017 – 02/2019**

- Deep learning models for object classification and text extraction in images and videos.
- Deep learning models for real-time recommendation with side information.

The University of Texas at Austin, Austin, Texas

Graduate Research Assistant **09/2012 – 05/2017**

- Deep learning for segmenting objects in images and videos.
- Human-in-the loop algorithms for efficient and cost-effective image and video segmentation.

CognitiveScale, Austin

Research intern **06/2016 – 08/2016**

- Deep learning for semantic image segmentation.

Media Analytics Department, NEC Labs America, Cupertino

Research intern **07/2014 – 10/2014**

- Image & video segmentation.

Vision Technologies Group, SRI International, Princeton

Research intern **05/2012 – 08/2012**

- Developed Conditional Random Fields based models for recognizing facial expressions and body gestures.
- Designed psychological experiments to collect facial images of subjects under stress.

Computer and Vision Research Center, UT Austin

Graduate Research Assistant

09/2010 - 05/2012

- Developed techniques for recognition of non-posed facial expressions. Our methods are based on modeling the temporal evolution of facial expressions and using it for recognition.
- The work was aimed at developing computer games using computer vision methods which can help autistic kids in learning facial expressions.

Texas Advanced Computing Center, Austin, TX

Graduate Research Assistant

09/2009 - 05/2011

- Designed and developed an information visualization system in Java for visualizing terabytes of archival data from National Archives of USA. This work proposes a new way of understanding and analyzing large digital archives.
- Actively conducted user studies to improve the user interface design and discover new use cases.
- Link: <http://tinyurl.com/nara-vis>

SELECTED PUBLICATIONS

John Abel, Suyog Jain, Deepta Rajan, Ken Leidal, Harshith Padigela, Aaditya Prakash, Jake Conway, Michael Nercessian, Christian Kirkup, Robert Egger, Ben Trotter, Andrew Beck, Ilan Wapinski, Michael G. Drage, Limin Yu, Amaro Taylor-Weiner, “AI-powered segmentation and analysis of nuclei morphology predicts genomic and clinical markers in multiple cancer types”, AACR 2022

Jennifer K. Kerner, Allison Cleary, Suyog Jain, Harsha Pokkalla, Benjamin Glass, Sam Grossmith, Maya Harary, Elizabeth Mittendorf, Andrew H. Beck, Aditya Khosla, Stuart J. Schnitt, Ilan Wapinski and Tari King, “Artificial intelligence powered predictive analysis of atypical ductal hyperplasia from digitized pathology images”, SABCS 2020

Suyog Jain, Kristen Grauman, “Click Carving: Interactive Object Segmentation in Images and Videos with Point Clicks”, International Journal of Computer Vision (IJCV), May 2019.

Danna Gurari, Yinan Zhao, Suyog Jain, Margrit Betke, Kristen Grauman, “Predicting How to Distribute Work Between Algorithms and Humans to Segment an Image Batch”, International Journal of Computer Vision (IJCV), Mar 2019.

Bo Xiong, Suyog Jain, Kristen Grauman, “Pixel Objectness: Learning to Segment Generic Objects Automatically in Images and Videos”, Transactions on Pattern Analysis and Machine Intelligence (PAMI), 2018.

Danna Gurari, Kun He, Bo Xiong, Jianming Zhang, Mehrnoosh Sameki, Suyog Jain, Stan Sclaroff, Margrit Betke, Kristen Grauman, “Predicting Foreground Object Ambiguity and Efficiently Crowdsourcing the Segmentation(s)”, International Journal of Computer Vision (IJCV), 2018.

Abigale Stangl, Esha Kothari, Suyog Jain, Tom Yeh, Kristen Grauman, Danna Gurari, “Browse-WithMe: An Online Clothes Shopping Assistant for People with Visual Impairments”, In Proceedings of The 20th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS), Galway, Ireland, Oct 2018.

Suyog Jain, Bo Xiong, Kristen Grauman, “FusionSeg: Learning to combine motion and appearance for fully automatic segmentation of generic objects in videos”, In Computer Vision and Pattern Recognition (CVPR), Honolulu, Hawaii, July 2017.

Suyog Jain, Kristen Grauman, “Click Carving: Segmenting Objects in Video with Point Clicks”, In Fourth AAAI Conference on Human Computation and Crowdsourcing (HCOMP), Austin, Texas October 2016.

Suyog Jain, Kristen Grauman, “Active Image Segmentation Propagation”, In Computer Vision and Pattern Recognition (CVPR), Las Vegas, June 2016.

Danna Gurari, Suyog Jain, Kristen Grauman, Margrit Betke, “Pull the Plug? Predicting If Computers or Humans Should Segment Images”, In Computer Vision and Pattern Recognition (CVPR), Las Vegas, June 2016.

Suyog Jain, Kristen Grauman, “Which Image Pairs Will Cosegment Well? Predicting Partners for Cosegmentation”, In Asian Conference on Computer Vision (ACCV), Singapore, Nov 2014.

Suyog Jain, Kristen Grauman, “Supervoxel-Consistent Foreground Propagation in Video”, In European Conference on Computer Vision (ECCV), Zurich, Switzerland, Sept 2014

Suyog Jain, Kristen Grauman, “Predicting Sufficient Annotation Strength for Interactive Foreground Segmentation”, In International Conference of Computer Vision (ICCV), Sydney, Australia, Dec 2013.

Weijia Xu, Maria Esteva, Suyog D Jain, and Varun Jain, “Interactive visualization for curatorial analysis of large digital collection” In Information Visualization, January 2013.

Suyog Jain, Changbo Hu and J. K. Aggarwal, “Facial Expression Recognition with Temporal Modeling of Shapes”, The 1st IEEE Workshop on Dynamic Shape Capture and Analysis (4DMOD) in conjunction with IEEE ICCV 2011, Barcelona, Spain, November 2011.

Xu, Weijia, Maria Esteva, Jain Suyog, Jain Varun, “Analysis of large digital collections with interactive visualization”. In Proceedings of 2011 IEEE Conference on Visual Analytics Science and Technology, VAST 2011, Providence, Rhode Island, USA, October 23-28, 2011, Pg: 241-250

Esteva, M., Jain, Suyog, Xu, W., Lee, J L, Martin, W K, “Assessing the preservation condition of large and heterogeneous electronic records collections with visualization”. In International Journal of Digital Curation 6(1):45-57 Feb. 2011

Xu, Weijia, Jain Suyog, Maria Esteva, “Visualization for archival appraisal of large digital collections”. In Proceedings of Archiving 2010 , Netherlands: June 1-4, 2010, Pg: 157-162

Xu, W., Esteva, M., and Jain, S. D. 2010, “Visualizing personal digital collections” In Proceedings of the 10th Annual Joint Conference on Digital Libraries (Queensland, Australia, June 21 - 25, 2010). JCDL '10. ACM, New York, 169-172.

HONOURS AND AWARDS

Outstanding Reviewer Award, ICCV 2015, BMVC 2017.

Dean’s Excellence award, College of Natural Sciences, University of Texas at Austin, 2011.

MEDIA

Featured on University of Texas homepage under “**Making the greatest impact**” series. [Link](#)

National Science Foundation, Discovery series: A Glimpse of the Archives of the Future. [Link](#)

Discover Magazine: Visualized: America’s Backup Drive. [Link](#)

Live Science: Behind the Scenes: A Glimpse to the Archives of the Future. [Link](#)

Futurity: Picture digital data on a massive scale. [Link](#)

Longhorn Network, UT Austin Visualization Lab: [Link](#)

Computer Vision News June 2016. [Link](#)

Conference Reviewer/Program Committees

- Computer Vision and Pattern Recognition (CVPR), 2013-22
- International Conference on Computer Vision (ICCV), 2013, 2015, 2017, 2019, 2021
- International Conference on Learning Representations(ICLR), 2022
- International Conference on Machine Learning (ICML), 2015
- Neural Information Processing Systems (NIPS), 2015, 2022
- European Conference on Computer Vision (ECCV), 2016, 2018
- Asian Conference on Computer Vision (ACCV), 2016
- AAAI Conference on Human Computation and Crowdsourcing (HCOMP), 2016
- HCOMP Workshop on Human Computation for Image and Video Analysis (GroupSight), 2016, 2017
- IEEE Winter Conference on Applications of Computer Vision (WACV), 2017-2019
- British Machine Vision Conference (BMVC), 2017-2019
- AAAI Conference on Artificial Intelligence (AAAI), 2020

Journal Reviewer:

- International Journal of Computer Vision (IJCV), 2016-
- Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2017-
- Pattern Recognition, 2018-