Ishan Misra

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Researcher working on machine learning and computer vision.

Employment

Research Scientist, FAIR, Meta AI New York — Sep 2018 - Present

Education

PhD in Robotics, Carnegie Mellon University, USA — Aug 2014 - Aug 2018
Advisors: Martial Hebert and Abhinav Gupta
Thesis Title: Visual Learning with Minimal Human Supervision
Thesis Committee: Martial Hebert, Abhinav Gupta, Deva Ramanan, Andrew Zisserman, Alexei Efros
Awards: SCS Distinguished Dissertation (Runner Up); One of two nominees from CMU for the ACM Dissertation Award

Masters in Robotics, Carnegie Mellon University, USA — Aug 2012 - May 2014
Advisor: Martial Hebert
Thesis Title: Data-driven Exemplar Model Selection
Awards: Siebel Scholar 2014; Best Student Paper at IEEE WACV 2014

BTech in Computer Science and Engineering, IIIT-Hyderabad, India — Aug 2008 - May 2012
Advisor: P J Narayanan
Thesis Title: Hybrid Implementation of Floyd-Steinberg Dithering
GPA: 9.81/10 (Rank 1 of 150 in graduating class)

Awards

- MIT Tech Review's 35 innovators under 35 (compiled globally across the world in all technological areas) in 2022
- Best paper candidate for CVPR 2021 (Audio-Visual Instance Discrimination)
- One of two nominees for the ACM Best Dissertation award from the School of Computer Science, Carnegie Mellon University in 2018
- Finalist for Facebook PhD Fellowship 2017
- Outstanding Reviewer at ECCV 2016, CVPR
- Global Hackathon Winner (Social Good category) Microsoft 2016 - Led to the product Microsoft Seeing AI
- Best Student Paper Award at IEEE WACV 2014
- Siebel Scholar, Class of 2014.

Invited Talks

- ECCV 2022 workshop on Computer Vision in the Wild
- ECCV 2022 workshop on Learning from Limited and Imperfect Data
- ECCV 2022 workshop on Self-supervised learning: What's Next?
- IIIT-H Learning Summer School, 2022
- Oxford Machine Learning Summer School, 2022
- Keynote speaker at the Ghostday ML Conference 2022. Speaking on self-supervised learning.
- ECCV 2020 workshop on Self-supervised learning: What's Next?
- At Universities for self-supervised learning - NYU (2019, 2020, 2021), Georgia Tech (2019, 2020, 2021), University of Maryland (2019, 2020, 2021), University of Oxford (2021, 2022), UIUC (2021), IIM Ahmedabad (2022), IIT Jodhpur (2021), UMass Amherst (2019)
- At Industry for self-supervised learning - Aurora Inc (2021), Zipline (2022), Walmart (2022)
- ML Podcasts - ML Street Talk, Lex Fridman (100K+ views on YouTube) in 2021
- An End-to-End Transformer Model for 3D Object Detection - ICCV 2021
- Learning by Asking Questions - CVPR 2018
- From Red Wine to Red Tomato: Composition with Context - CVPR 2017
- Learning without Exhaustive Supervision - INRIA Grenoble, France 2016; ENS/INRIA Willow Paris, France 2016
- Learning with Noisy Labels - Data Science Podcast 2016
- Cross Stitch Networks for Multi-task Learning - CVPR 2016

Workshops

- Co-organized the workshop Self-supervised learning Theory and Practice at NeurIPS 2020, 2021, 2022
- Co-organized the Facebook AI Self-supervised Learning Challenge at ICCV 2019
- Co-organized the Extreme Scale Vision Workshop at ICCV 2019
- Co-organized the Vision & Language StoryTelling Workshop at ICCV 2017

Popular Media

- Interviewed by Lex Fridman for self-supervised learning
- SEER - Self-supervised learning with a billion images - covered on Wired (2021), VentureBeat (2021), State of AI (2021)
- Self-supervised Learning: The dark matter of intelligence (with Yann LeCun) - covered by Yannic Kilcher on YouTube, YCombinator (2021)
- Do Object Recognition Systems work for everyone? - covered by FossBytes (2019), The Register UK (2019), The Verge (2109)
- Visual systems that help the visually impaired - covered by MIT Tech Review (2016), Venture Beat (2016), Ars Technica (2016)

Open Source

- VISSL - Visual Self-supervised Learning on GitHub is Facebook's main library for self-supervised learning in vision. With more than 2.3K stars, it is the most widely used reference library for self-supervised evaluations and implementations.

Academic Service

Reviewing

- Area Chair for CVPR 2021, ICLR 2022, CVPR 2023
- Reviewer for Journals - TPAMI (since 2016), IJCV (since 2018), JMLR (since 2018)
- Reviewer for conferences: CVPR (since 2015), ECCV (since 2016), ICCV (since 2015), NeurIPS (since 2018), ICML (since 2019), ICLR (since 2019)

Patents

- US Patent 9785866 Optimizing multi-class multimedia data classification using negative data
- US Patent 10013637 Optimizing multi-class image classification using patch features

Publications

A complete list can be found on my Google Scholar page 9400+ citations and h-index of 30 (as of November, 2022)

Research Internships

Facebook AI Research, New York (2017) Advisor: Rob Fergus, Laurens van der Maaten, Ross Girshick

Worked on actively acquiring supervision for learning algorithms. Proposed a learning setting for Visual Question Answering where the agent acquires supervision by asking questions, rather than learn from a fixed dataset alone.

Microsoft Research, Redmond (2015) Advisor: Ross Girshick, Larry Zitnick, Meg Mitchell

Primarily worked on learning from large scale web data using noisy labels. Also contributed on projects involving language generation and visual storytelling.

Microsoft Research, Redmond (2014) Advisor: Xian-Sheng Hua

Worked on Large scale weakly supervised image classification. Designed meaningful and scalable patch-based image features which used webly supervised data.

INRIA/Ecole Centrale Paris, France (2012) Advisor: Iasonas Kokkinos

My work focused on using shading cues (based on classical techniques like Shape From Shading, Photometric Stereo) and using them on images from an object category taken in general unknown illumination.