

Jia-Bin Huang

Education

- 2012–2016 **Ph.D.**, *University of Illinois, Urbana-Champaign*, Illinois.
Electrical and Computer Engineering, Coordinated Science Lab
Advisor: Narendra Ahuja [📄 link](#)
Thesis: Visual Analysis and Synthesis with Physically Grounded Constraints [📄 link](#)
UIUC Graduate College Dissertation Completion Fellowship
- 2010–2012 **Masters of Science**, *University of Illinois, Urbana-Champaign*, Illinois.
Electrical and Computer Engineering, Coordinated Science Lab
Thesis: Saliency Detection via Divergence Analysis: A Unified Perspective
ICPR 2012 Best Student Paper Award
Advisor: Narendra Ahuja [📄 link](#)
- 2002–2006 **Bachelor of Science**, *National Chiao-Tung University*, Hsin-Chu, Taiwan.
Department of Electronics Engineering
Undergraduate thesis: Information Preserving Color Transformation for the Colorblind
Advisor: Sheng-Jyh Wang [📄 link](#)

Work Experience

- August 2016– **Electrical and Computer Engineering, Virginia Tech.**
Assistant Professor
- Summer 2020 **Facebook, Seattle.**
Visiting Research Scientist in the Computational Photography group. Host: Johannes Kopf
- Summer 2019 **Facebook, Seattle.**
Visiting Research Scientist in the Computational Photography group. Host: Johannes Kopf
- Summer 2014 **Disney Research Pittsburgh.**
Research Intern. Mentor: Leonid Sigal and Sung Ju Hwang
- Summer 2013 **Multimedia, Interaction, and Communication (MIC) Group, Microsoft Research.**
Research Intern. Mentor: Zhengyou Zhang
- Summer 2012 **Interactive Visual Media (IVM) Group, Microsoft Research.**
Research Intern. Mentor: Johannes Kopf and Sing Bing Kang
- 2010–2016 **Electrical and Computer Engineering, University of Illinois, Urbana-Champaign.**
Research Assistant. Mentor: Narendra Ahuja
- Spring 2009 **Electrical Engineering and Computer Science, University of California, Merced.**
Visiting student. Mentor: Ming-Hsuan Yang
- 2008 – 2009 **Institute of Information Science, Academia Sinica.**
Research Assistant. Mentor: Chu-Song Chen
- 2005–2006 **Electronics Engineering, National Chiao-Tung University.**
Research Assistant. Mentor: Sheng-Jyh Wang

Publications [\(📄 Google Scholar profile\)](#)

Journal papers

- TOG 2020 **Consistent Video Depth Estimation.**
Xuan Luo, Jia-Bin Huang, Richard Szeliski, Kevin Matzen, Johannes Kopf
ACM Transactions on Graphics (Proceedings of SIGGRAPH 2020)

[📄 paper](#) [📄 project](#)

- PAMI 2020 **Show, Match and Segment: Joint Weakly Supervised Learning of Semantic Matching and Object Co-segmentation.**
Yun-Chun Chen, Yen-Yu Lin, Ming-Hsuan Yang, and Jia-Bin Huang
IEEE Transactions on Pattern Analysis and Machine Intelligence, 2020 [i](#) [paper](#) [i](#) [project](#)
- IJCV 2020 **DRIT++: Diverse Image-to-Image Translation via Disentangled Representations.**
Hsin-Ying Lee, Hung-Yu Tseng, Qi Mao, Jia-Bin Huang, Yu-Ding Lu, Maneesh Singh, Ming-Hsuan Yang
International Journal of Computer Vision, 2020 [i](#) [paper](#) [i](#) [project](#)
- IJCV 2020 **Tracking Persons-of-Interest via Unsupervised Representation Adaptation.**
Shun Zhang, Jia-Bin Huang, Jongwoo Lim, Yihong Gong, Jinjun Wang, Narendra Ahuja, and Ming-Hsuan Yang
International Journal of Computer Vision, 2020 [i](#) [paper](#) [i](#) [project](#)
- PAMI 2019 **Progressive Representation Adaptation for Weakly Supervised Object Localization.**
Dong Li, Jia-Bin Huang, Yali Li, Shengjin Wang, and Ming-Hsuan Yang
IEEE Transactions on Pattern Analysis and Machine Intelligence, 2019 [i](#) [paper](#) [i](#) [project](#)
- PAMI 2019 **Joint Image Filtering with Deep Convolutional Networks.**
Yijun Li, Jia-Bin Huang, Narendra Ahuja, and Ming-Hsuan Yang
IEEE Transactions on Pattern Analysis and Machine Intelligence, 2019 [i](#) [paper](#) [i](#) [project](#)
- TOG 2018 **Multi-view Wire Art.**
Kai-Wen Hsiao, Jia-Bin Huang, and Hung-Kuo Chu
ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia 2018)
Oral Presentation [i](#) [paper](#) [i](#) [project](#)
- PAMI 2018 **Fast and Accurate Image Super-Resolution with Deep Laplacian Pyramid Networks.**
Wei-Sheng Lai, Jia-Bin Huang, Narendra Ahuja, and Ming-Hsuan Yang
IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), 2018 [i](#) [paper](#) [i](#) [project](#)
- PAMI 2018 **Robust Visual Tracking via Hierarchical Convolutional Features.**
Chao Ma, Jia-Bin Huang, Xiaokang Yang, and Ming-Hsuan Yang
IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), 2018 [i](#) [paper](#) [i](#) [project](#)
- IJCV 2018 **Adaptive Correlation Filters with Long-Term and Short-Term Memory for Object Tracking .**
Chao Ma, Jia-Bin Huang, Xiaokang Yang, and Ming-Hsuan Yang
International Journal of Computer Vision (IJCV), 2018 [i](#) [paper](#) [i](#) [project](#)
- CVIU 2018 **Ensemble of Convolutional Neural Networks for Pose Estimation.**
Yuki Kawana, Norimichi Ukita, Jia-Bin Huang, and Ming-Hsuan Yang
Computer Vision and Image Understanding (CVIU), 2018 [i](#) [paper](#)
- TOG 2016 **Temporally Coherent Completion of Dynamic Video.**
Jia-Bin Huang, Sing Bing Kang, Narendra Ahuja, and Johannes Kopf
ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia 2016)
Oral Presentation [i](#) [paper](#) [i](#) [project](#)
- TOG 2014 **Image Completion using Planar Structure Guidance.**
Jia-Bin Huang, Sing Bing Kang, Narendra Ahuja, and Johannes Kopf
ACM Transactions on Graphics (Proceedings of SIGGRAPH 2014)
Oral Presentation [i](#) [paper](#) [i](#) [project](#)
- SPL 2007 **Information Preserving Color Transformation for Protanopia and Deuteranopia.**
Jia-Bin Huang, Yu-cheng Tseng, Se-In Wu, and Sheng-Jyh Wang
IEEE Signal Processing Letters, Vol. 14, No.10, October 2007 [i](#) [paper](#) [i](#) [project](#)
[Conference papers](#)
- ECCV 2020 **Flow-edge Guided Video Completion.**
Chen Gao, Ayush Saraf, Jia-Bin Huang, and Johannes Kopf
Proceedings of European Conference on Computer Vision, 2020 [i](#) [paper](#) [i](#) [project](#)
- ECCV 2020 **DRG: Dual Relation Graph for Human-Object Interaction Detection.**
Chen Gao, Jiarui Xu, Yuliang Zou, Jia-Bin Huang
Proceedings of European Conference on Computer Vision, 2020 [i](#) [paper](#) [i](#) [project](#)
- ECCV 2020 **Semantic View Synthesis.**
Hsin-Ping Huang, Hung-Yu Tseng, Hsin-Ying Lee, and Jia-Bin Huang
Proceedings of European Conference on Computer Vision, 2020 [i](#) [paper](#) [i](#) [project](#)
- ECCV 2020 **NAS-DIP: Learning Deep Image Prior with Neural Architecture Search .**
Yun-Chun Chen, Chen Gao, Esther Robb, and Jia-Bin Huang
Proceedings of European Conference on Computer Vision, 2020 [i](#) [paper](#) [i](#) [project](#)

- ECCV 2020 **Shuffle and Attend: Video Domain Adaptation.**
Jinwoo Choi, Gaurav Sharma, Samuel Schulter, and Jia-Bin Huang
Proceedings of European Conference on Computer Vision, 2020 [i](#) [paper](#) [i](#) [project](#)
- ECCV 2020 **FeatMatch: Feature-Based Augmentation for Semi-Supervised Learning.**
Chia-Wen Kuo, Chih-Yao Ma, Jia-Bin Huang, and Zsolt Kira
Proceedings of European Conference on Computer Vision, 2020 [i](#) [paper](#) [i](#) [project](#)
- ECCV 2020 **Learning Monocular Visual Odometry via Self-Supervised Long-Term Modeling.**
Yuliang Zou, Pan Ji, Quoc-Huy Tran, Jia-Bin Huang, and Manmohan Chandraker
Proceedings of European Conference on Computer Vision, 2020 [i](#) [paper](#) [i](#) [project](#)
- CVPR 2020 **3D Photography using Context-aware Layered Depth Inpainting.**
Meng-Li Shih, Shih-Yang Su, Johannes Kopf, and Jia-Bin Huang
Proceedings of IEEE Conference on Computer Vision and Pattern Recognition, 2020 [i](#) [paper](#) [i](#) [project](#)
- CVPR 2020 **Learning to See Through Obstructions.**
Yu-Lun Liu, Wei-Sheng Lai, Ming-Hsuan Yang, Yung-Yu Chuang, and Jia-Bin Huang
Proceedings of IEEE Conference on Computer Vision and Pattern Recognition, 2020 [i](#) [paper](#) [i](#) [project](#)
- CVPR 2020 **Single-Image HDR Reconstruction by Learning to Reverse the Camera Pipeline.**
Yu-Lun Liu, Wei-Sheng Lai, Yu-Sheng Chen, Yi-Lung Kao, Ming-Hsuan Yang, Yung-Yu Chuang, and Jia-Bin Huang
Proceedings of IEEE Conference on Computer Vision and Pattern Recognition, 2020 [i](#) [paper](#) [i](#) [project](#)
- CVPR 2020 **Instance-aware Image Colorization.**
Jheng-Wei Su, Hung-Kuo Chu, and Jia-Bin Huang
Proceedings of IEEE Conference on Computer Vision and Pattern Recognition, 2020 [i](#) [paper](#) [i](#) [project](#)
- ICLR 2020 **Cross-Domain Few-Shot Classification via Learned Feature-Wise Transformation.**
Hung-Yu Tseng, Hsin-Ying Lee, Jia-Bin Huang, and Ming-Hsuan Yang
Proceedings of International Conference on Learning Representations, 2020 [i](#) [paper](#) [i](#) [project](#)
Spotlight Oral Presentation
- WACV 2020 **Reducing Footskate in Human Motion Reconstruction with Ground Contact Constraints.**
Yuliang Zou, Jimei Yang, Duygu Ceylan, Jianming Zhang, Federico Perazzi, and Jia-Bin Huang
Proceedings of IEEE Winter Conference on Applications of Computer Vision, 2020 [i](#) [paper](#) [i](#) [project](#)
- WACV 2020 **Unsupervised and Semi-Supervised Domain Adaptation for Action Recognition from Drones.**
Jinwoo Choi, Gaurav Sharma, Manmohan Chandraker, and Jia-Bin Huang
Proceedings of IEEE Winter Conference on Applications of Computer Vision, 2020 [i](#) [paper](#) [i](#) [project](#)
- NeurIPS 2019 **Why Can't I Dance in the Mall? Learning to Mitigate Scene Bias in Action Recognition.**
Jinwoo Choi, Chen Gao, Joseph C. E. Messou, and Jia-Bin Huang
Proceedings of Neural Information Processing Systems, 2019 [i](#) [paper](#) [i](#) [project](#)
- ICCV 2019 **Guided Image-to-Image Translation with Bi-Directional Feature Transformation.**
Badour AlBahar and Jia-Bin Huang
Proceedings of IEEE International Conference on Computer Vision, 2019 [i](#) [paper](#) [i](#) [project](#)
- CVPR 2019 **CrDoCo: Pixel-level Domain Transfer with Cross-Domain Consistency.**
Yun-Chun Chen, Yen-Yu Lin, Ming-Hsuan Yang, and Jia-Bin Huang
Proceedings of IEEE Conference on Computer Vision and Pattern Recognition, 2019 [i](#) [paper](#) [i](#) [project](#)
- CVPR 2019 **SAIL-VOS: Semantic Amodal Instance Level Video Object Segmentation - A Synthetic Dataset and Baselines.**
Yuan-Ting Hu, Hong-Shuo Chen, Kexin Hui, Jia-Bin Huang, and Alexander Schwing
Proceedings of IEEE Conference on Computer Vision and Pattern Recognition, 2019 [i](#) [paper](#) [i](#) [project](#)
- ICLR 2019 **A Closer Look at Few-shot Classification.**
Wei-Yu Chen, Yen-Cheng Liu, Zsolt Kira, Yu-Chiang Frank Wang, and Jia-Bin Huang
Proceedings of International Conference on Learning Representation, 2019 [i](#) [paper](#) [i](#) [project](#)
- AAAI 2019 **Connecting the Digital and Physical World: Improving the Robustness of Adversarial Attacks.**
Steve T.K. Jan, Joseph Messou, Yen-Chen Lin, Jia-Bin Huang, and Gang Wang
Proceedings of AAAI Conference on Artificial Intelligence, 2019 [i](#) [paper](#) [i](#) [project](#)
- arXiv 2018 **Deep Paper Gestalt.**
Jia-Bin Huang
arXiv:1812.08775, 2018 [i](#) [paper](#) [i](#) [project](#)
- ACCV 2018 **Deep Semantic Matching with Foreground Detection and Cycle-Consistency.**
Yun-Chun Chen, Po-Hsiang Huang, Li-Yu Yu, Jia-Bin Huang, Ming-Hsuan Yang, and Yen-Yu Lin
Proceedings of Asian Conference on Computer Vision, 2018 [i](#) [paper](#) [i](#) [project](#)

- ECCV 2018 **Diverse Image-to-Image Translation via Disentangled Representations.**
Hsin-Ying Lee, Hung-Yu Tseng, Jia-Bin Huang, Maneesh Singh, and Ming-Hsuan Yang
Proceedings of European Conference on Computer Vision, 2018 [i](#) [paper](#) [i](#) [project](#)
Oral Presentation
- ECCV 2018 **DF-Net: Unsupervised Joint Learning of Depth and Flow using Cross-Task Consistency.**
Yuliang Zou, Zelun Luo, and Jia-Bin Huang
Proceedings of European Conference on Computer Vision, 2018 [i](#) [paper](#) [i](#) [project](#)
- ECCV 2018 **Learning Blind Video Temporal Consistency.**
Wei-Sheng Lai, Jia-Bin Huang, Oliver Wang, Eli Shechtman, Ersin Yumer, Ming-Hsuan Yang
Proceedings of European Conference on Computer Vision, 2018 [i](#) [paper](#) [i](#) [project](#)
- ECCV 2018 **VideoMatch: Matching based Video Object Segmentation.**
Yuan-Ting Hu, Jia-Bin Huang, and Alexander Schwing
Proceedings of European Conference on Computer Vision, 2018 [i](#) [paper](#)
- ECCV 2018 **Unsupervised Video Object Segmentation using Motion Saliency-Guided Spatio-Temporal Propagation.**
Yuan-Ting Hu, Jia-Bin Huang, and Alexander Schwing
Proceedings of European Conference on Computer Vision, 2018 [i](#) [paper](#) [i](#) [project](#)
- BMVC 2018 **iCAN: Instance-Centric Attention Network for Human-Object Interaction Detection.**
Chen Gao, Yuliang Zou, and Jia-Bin Huang
Proceedings of British Machine Vision Conference, 2018 [i](#) [paper](#) [i](#) [project](#)
- ACCV 2018 **Deep Semantic Matching with Foreground Detection and Cycle-Consistency.**
Yun-Chun Chen, Po-Hsiang Huang, Li-Yu Yu, Jia-Bin Huang, Ming-Hsuan Yang, and Yen-Yu Lin
Proceedings of Asian Conference on Computer Vision 2018 [i](#) [paper](#) [i](#) [project](#)
- CVPR 2018 **DeepMVS: Learning Multi-View Stereopsis .**
Po-Han Huang, Kevin Matzen, Johannes Kopf, Narendra Ahuja, and Jia-Bin Huang
Proceedings of IEEE Conference on Computer Vision and Pattern Recognition, 2018 [i](#) [paper](#) [i](#) [project](#)
- NeurIPS 2017 **MaskRNN: Instance Level Video Object Segmentation.**
Yuan-Ting Hu Jia-Bin Huang, and Alexander Schwing
Proceedings of Neural Information Processing Systems, 2017 [i](#) [paper](#) [i](#) [project](#)
- NeurIPS 2017 **Semi-Supervised Learning for Optical Flow with Generative Adversarial Networks.**
Wei-Sheng Lai Jia-Bin Huang, and Ming-Hsuan Yang
Proceedings of Neural Information Processing Systems, 2017 [i](#) [paper](#) [i](#) [project](#)
- NeurIPS-W 2017 **Detecting Adversarial Attacks on Neural Network Policies with Visual Foresight.**
Yen-Chen Lin, Ming-Yu Liu, Min Sun, and Jia-Bin Huang
Proceedings of Neural Information Processing Systems Workshop, 2017 [i](#) [paper](#) [i](#) [project](#)
- ASSETS 2017 **HOMER: an interactive system for home based stroke rehabilitation.**
Aisling Kelliher Jinwoo Choi, Jia-Bin Huang, Kris Kitani, and Thanassis Rikakis
Proceedings of International ACM SIGACCESS Conference on Computers and Accessibility, 2017 [i](#) [paper](#)
[i](#) [project](#)
- ICCV 2017 **Unsupervised Representation Learning by Sorting Sequences.**
Hsin-Ying Lee Jia-Bin Huang, Maneesh Singh, and Ming-Hsuan Yang
Proceedings of International Conference on Computer Vision, 2017 [i](#) [paper](#) [i](#) [project](#)
- CVPR 2017 **Deep Laplacian Pyramid Networks for Fast and Accurate Single Image Super-Resolution.**
Wei-Sheng Lai Jia-Bin Huang, Narendra Ahuja, and Ming-Hsuan Yang
IEEE Conference on Computer Vision and Pattern Recognition, 2017 [i](#) [paper](#) [i](#) [project](#)
- ECCV 2016 **Deep Joint Image Filter.**
Yijun Li, Jia-Bin Huang, Narendra Ahuja, and Ming-Hsuan Yang
European Conference on Computer Vision, 2016 [i](#) [paper](#) [i](#) [project](#)
- ECCV 2016 **Tracking Persons-of-Interest via Adaptive Discriminative Features.**
Shun Zhang, Yihong Gong, Jia-Bin Huang, Jongwoo Lim, Jinjun Wang, Narendra Ahuja, and Ming-Hsuan Yang
European Conference on Computer Vision, 2016 [i](#) [paper](#) [i](#) [project](#)
- ECCV 2016 **Unsupervised Visual Representation Learning by Graph-based Consistent Constraints.**
Dong Li, Wei-Chih Hung, Jia-Bin Huang, Shengjin Wang, Narendra Ahuja, and Ming-Hsuan Yang
European Conference on Computer Vision, 2016 [i](#) [paper](#) [i](#) [project](#)

- CVPR 2016 **Detecting Migrating Birds at Night.**
Jia-Bin Huang, Rich Caruana, Andrew Farnsworth, Steve Kelling, and Narendra Ahuja
IEEE Conference on Computer Vision and Pattern Recognition, 2016 [i paper](#) [i project](#)
- CVPR 2016 **A Comparative Study for Single-Image Blind Deblurring.**
Wei-Sheng Lai Jia-Bin Huang, Zhe Hu, Narendra Ahuja, and Ming-Hsuan Yang
IEEE Conference on Computer Vision and Pattern Recognition, 2016 [i paper](#) [i project](#)
Spotlight Presentation
- CVPR 2016 **Weakly Supervised Object Localization with Progressive Domain Adaptation.**
Dong Li, Jia-Bin Huang, Yali Li, Shengjin Wang, and Ming-Hsuan Yang
IEEE Conference on Computer Vision and Pattern Recognition, 2016 [i paper](#) [i project](#)
- ICCV 2015 **Hierarchical Convolutional Features for Visual Tracking.**
Chao Ma, Jia-Bin Huang, Xiaokang Yang, and Ming-Hsuan Yang,
IEEE International Conference on Computer Vision, 2015 [i paper](#) [i project](#)
- CVPR 2015 **Single Image Super-Resolution from Transformed Self-Exemplars.**
Jia-Bin Huang, Abhishek Singh, and Narendra Ahuja,
IEEE Conference on Computer Vision and Pattern Recognition, 2015 [i paper](#) [i project](#)
Oral Presentation (acceptance rate < 3%)
- ETRA 2014 **Towards Accurate and Robust Cross-Ratio based Gaze Trackers Through Learning From Simulation.**
Jia-Bin Huang, Qin Cai, Zicheng Liu, Narendra Ahuja, and Zhengyou Zhang
ACM Symposium on Eye Tracking Research & Applications, (ETRA), 2014 [i paper](#) [i project](#)
Oral Presentation
US Pattern US20150278599
ETRA 2014 Best Long Paper Award
- ICCP 2013 **Transformation Guided Image Completion.**
Jia-Bin Huang, Johannes Kopf, Narendra Ahuja, and Sing Bing Kang
IEEE Conference on International Conference on Computational Photography (ICCP), 2013 [i paper](#) [i project](#)
Oral Presentation
- ICPR 2012 **Saliency Detection via Divergence Analysis: A Unified Perspective.**
Jia-Bin Huang and Narendra Ahuja
International Conference on Pattern Recognition (ICPR), 2012 [i project](#)
Oral Presentation [i paper](#)
ICPR 2012 Best Student Paper Award (Computer Vision and Robot Vision Track)
- ACCV 2010 **Exploiting Self-Similarities for Single Frame Super-Resolution .**
Chih-Yuan Yang, Jia-Bin Huang, and Ming-Hsuan Yang
Asian Conference on Computer Vision, 2010 [i paper](#) [i project](#)
- ICIP 2010 **Single Image Deblurring with Adaptive Dictionary Learning.**
Zhe Hu, Jia-Bin Huang, and Ming-Hsuan Yang
IEEE International Conference on Image Processing, 2010 [i paper](#) [i project](#)
- CVPR 2010 **Fast Sparse Representation with Prototypes.**
Jia-Bin Huang and Ming-Hsuan Yang
IEEE Conference on Computer Vision and Pattern Recognition, 2010 [i paper](#) [i project](#)
- ACCV 2009 **Estimating Human Pose from Occluded Images.**
Jia-Bin Huang and Ming-Hsuan Yang
Asian Conference on Computer Vision, 2009 [i paper](#) [i project](#)
Oral Presentation
- CVPR 2009 **Moving Cast Shadow Detection Using Physics-based Features.**
Jia-Bin Huang and Chu-Song Chen
IEEE Conference on Computer Vision and Pattern Recognition, 2009 [i paper](#) [i project](#)
- ICASSP 2009 **A Physical Approach to Moving Cast Shadow Detection.**
Jia-Bin Huang and Chu-Song Chen
IEEE International Conference on Acoustics, Speech and Signal Processing, 2009 [i paper](#)
Oral Presentation
- ICASSP 2009 **Image Recolorization For The Colorblind.**
Jia-Bin Huang, Chu-Song Chen Tzu-Cheng Jen, and Sheng-Jyh Wang
IEEE International Conference on Acoustics, Speech and Signal Processing, 2009 [i paper](#)

ECCV-W 2008 **Learning Moving Cast Shadows for Foreground Detection.**

Jia-Bin Huang and Chu-Song Chen

Eighth International Workshop on Visual Surveillance, 2008

[paper](#)

ECCV-W 2008 **Enhancing Color Representation for the Color Vision Impaired.**

Jia-Bin Huang and Chu-Song Chen

Workshop on Computer Vision Applications for the Visually Impaired, 2008

Oral Presentation [paper](#)

Funding

Research Grants

- 2021-2024 **SCH: Semi-Automated Rehabilitation in the Home**, *Co-PI*, National Science Foundation Smart and Connected Health, Award amount: \$1,100,000..
- 2020-2022 **Learning with Limited Supervision**, *Sole-PI*, 3M Non-tenured Faculty Award, 3M.
Award amount: \$45,000.
- 2020-2021 **Reflection Removal from Structured Light Fields**, *Sole-PI*, Denso Corp.
Award amount: \$127,715.
- 2020-2021 **Reducing Biases in Visual Recognition**, *PI*, 4-VA Collaborative Research.
Award amount: \$25,000. (with Vicente Roman at University of Virginia)
- 2020-2022 **Rapid Predictive Analytical Model Deployment in Vehicles**, *Co-PI*, Ford .
Award amount: \$204,851. (with Brian Mayer at Virginia Tech)
- 2019-2022 **CPS: Medium: Computation-Aware Autonomy for Timely and Resilient Multi-Agent Systems**, *Co-PI*, Cyber-Physical System (CPS), National Science Foundation.
Award amount: \$1,197,661. (with Ryan William, Haibo Zeng, Changhee Jung)
- 2020-2022 **Sensor Technology Applied to Rehabilitation in Stroke Rehabilitation Strategies**, *Co-PI*, Techniques, and Interventions program, Rehabilitation Engineering Research Centers (RERC).
Award amount: \$349,209. (with Thanasis Rikakis, Aisling Kelliher)
- 2019-2020 **Dancing Plants: Integrating Plant Imaging and Acoustics to Improve Plant Growth**, *Co-PI*, ICAT SEAD Grant, ICAT, Virginia Tech.
Award amount: \$ 25,000. (with Bingyu Zhao, Ivica Bukvic, Daniel Pillis)
- 2019-2021 **Novel View Synthesis and 3D Reconstruction from Structured Inputs**, *Sole-PI*, Denso Corp.
Award amount: \$200,000.
- 2019-2020 **Instance-level Video Object Segmentation in the Wild**, *Co-PI*, Global Outreach Award (GRO), Samsung.
Award amount: \$100,000. (with Alexander Schwing at UIUC)
- 2018-2019 **Human-centric Activity Understanding with Relational Reasoning**, *Sole-PI*, Google Faculty Research Award, Google.
Award amount: \$53,375.
- 2018-2019 **Instance-level Video Object Segmentation in the Wild**, *Co-PI*, Global Outreach Award (GRO), Samsung.
Award amount: \$98,945. (with Alexander Schwing at UIUC)
- 2018-2020 **CRII: RI: Representation Learning and Adaptation using Unlabeled Videos**, *Sole-PI*, CISE Research Initiation Initiative Award, National Science Foundation.
Award amount: \$172,903.
- 2017-2018 **Source Form**, *Co-PI*, ICAT SEAD Grant .
Award amount: \$ 25,000. (with Sam Blanchard and Christopher B. Williams)

Equipment, Educational, Organizational Grants & Gifts

- 2020 **Facebook. \$10,000**, Facebook.
- 2020 **Adobe. \$10,000**, Adobe.
- 2020 **Adobe. \$7,000**, Adobe.
- 2020 **Facebook. \$10,000**, Facebook.

- 2019 **Facebook. \$15,000**, *Facebook*.
- 2019 **Google Cloud Research Credits Program. \$5,000**, *Google AI*.
- 2018 **Google Cloud Research Credits Program. \$5,000**, *Google AI*.
- 2018 **NVIDIA GPU Grant: Titan Xp**, *NVIDIA Corp..*
- 2018 **PFP Cybersecurity. \$15,000**, *PFP Cybersecurity* .
- 2018 **Adobe Research. \$10,000**, *Adobe*.
- 2017 **NVIDIA GPU Grant: Titan Xp**, *NVIDIA Corp..*
- 2017 **Faculty mentoring grant. \$1,500**, *Office of the Provost, Virginia Tech*.
- 2016 **NVIDIA GPU Grant: Titan X**, *NVIDIA Corp..*

Selected Honors and Awards

- Oct 2019 **Outstanding Reviewer Award**, *Neural Information Processing System 2019*.
- July 2017 **Outstanding Reviewer Award**, *IEEE Computer Vision and Pattern Recognition 2017*.
- Dec 2016 **Outstanding Reviewer Award**, *Visual Communications and Image Processing*.
[📄 link](#)
- Feb 2016 **Best Talk Award**, *Coordinated Science Laboratory Student Conference*, UIUC.
in recognition of high-quality research, professional slides, and elegant eloquence. [📄 link](#)
- May 2015 **Dissertation Completion Fellowship**, *Graduate College*, UIUC.
A university-wide fellowship. Full tuition waiver and a one-year stipend. [📄 link](#)
- May 2015 **Cognitive Science / Artificial Intelligence Award**, *Beckman Institute*, UIUC.
Award for supporting and encouraging students with interdisciplinary interest in CS/AI. [📄 link](#)
- April 2015 **Thomas and Margaret Huang Award for Graduate Research**, *Beckman Institute*, UIUC.
Research award for supporting graduate students in Human-Computer Intelligent Interaction [📄 link](#)
- April 2015 **First place**, *Team Space Design Competition*, NASA Jet Propulsion Laboratory.
A university-wide competition host by NASA JPL [📄 certificate](#)
- March 2015 **Conference Travel Award**, *Graduate College*, UIUC.
Travel grant for attending IEEE Conference on Computer Vision and Pattern Recognition [📄 link](#)
- July 2014 **MOE Technologies Incubation Scholarship**, *Ministry of Education*, Taiwan.
Annual scholarship 42,000 USD for three years [📄 certificate](#)
- March 2014 **Best Long Paper Award**, *ACM Symposium on Eye Tracking Research*, ETRA 2014.
For our work on learning-based eye tracking [📄 certificate](#)
- March 2014 **Sundaram Seshu International Student Fellowship** , *ECE*, UIUC.
UIUC ECE departmental fellowship [📄 certificate](#)
- Dec 2014 **PURE Best Project Award x3**, *Promoting Undergraduate Research in Engineering*, UIUC.
Michael Qiu (Fall 2014), Zelun Luo, Anarghya Mitra (Spring 2013), and Sakshi Srivastava (Fall 2012)
- Dec 2012 **Best Mentor of the Semester**, *Promoting Undergraduate Research in Engineering*, UIUC.
- Nov 2012 **Best Student Paper Award**, *International Conference on Pattern Recognition*, ICPR 2012.
For our work "Saliency Detection via Divergence Analysis: A unified perspective." [📄 link](#)
- May 2010 **Government Scholarship for Studying Abroad**, *Ministry of Education*, Taiwan.
One of nine selected EECS people with excellent academic performance
- Aug 2008 **Best Paper Award Runner Up**, *Computer Vision, Graphics, and Image Processing*, 2008.
- Aug 2006 **Best Paper Award Runner Up**, *Computer Vision, Graphics, and Image Processing*, 2006.

Advising Activity

Current Graduate Advises

- Fall 2016 - **Jinwoo Choi**, *Ph.D. student*, Virginia Tech, **Bindi Prasad Scholarship** .
- Fall 2017 - **Yuliang Zou**, *Ph.D. student*, Virginia Tech.
- Fall 2018 - **Badour AlBahar**, *Ph.D. student*, Virginia Tech, **Kuwait University Scholarship**.

- Fall 2018 - **Chen Gao**, *Ph.D. student*, Virginia Tech.
 Fall 2019 - **Esther Robb**, *M.S. student*, Virginia Tech, [Bradley Research Fellowships](#).
 Fall 2020 - **Lowell Weissman**, *M.S. student*, Virginia Tech.

Former MS/BS Students

- 2018 - 2020 **Shih-Yang Su**, *M.S. student*, Virginia Tech.
 ○ Thesis: Learning to handle occlusion for motion analysis and view synthesis
 ○ Next position: PhD student at The University of British Columbia (Advisor: Helge Rhodin)
- 2018 - 2020 **Joseph Messou**, *M.S. student*, Virginia Tech, [New Horizon Graduate Scholarship](#).
 ○ Thesis: Handling Invalid Pixels in Convolutional Neural Networks
 ○ Next position: PhD student at The University of Maryland
- 2017 - 2019 **Subhashree Radhakrishnan**, *M.S. student*, Virginia Tech.
 ○ Next position: Deep Learning Engineer at NVIDIA
- 2016 - 2018 **Po-Han Huang**, *ECE, UIUC*.
 ○ MS Thesis: DeepMVS: Learning Multi-View Stereopsis
 ○ Next position: Deep Learning Engineer at NVIDIA
- 2016 - 2018 **Adithya Reddy**, *ECE, Virginia Tech*.
 ○ Next position: Software engineer at Qualcomm
- Fall 2014 **Michael Qiu**, *CE, UIUC*.
 ○ Project: Enhancing Portrait Photographs [Best PURE project award](#)
- Fall 2013 **Le Wang**, *ECE, UIUC*.
 ○ Project: Video-based Physiology Signal Monitoring [Third Place, The Image of Research](#)
 ○ Next position: MS student at Stanford University
- Spring 2013 **Zelun Luo**, *ECE, UIUC*.
 ○ Project: Video-based identity and expression recognition (with Anarghya Mitra) [Best PURE project award](#)
 ○ Next position: PhD student at Stanford University (Advisor: Fei-Fei Li)
- Spring 2013 **Anarghya Mitra**, *ECE, UIUC*.
 ○ Project: Video-based identity and expression recognition (with Zelun Luo) [Best PURE project award](#)
 ○ Next position: Software engineer at Google
- Fall 2012 **JunYoung Gwak**, *CS, UIUC*.
 ○ Project: Pose-aware online visual tracking [poster](#) [Jeffrey P. Blahut Memorial Scholarship](#)
 ○ Next position: PhD student at Stanford University (Advisor: Silvio Savarese)
- Fall 2012 **Linjia Chang**, *ECE, UIUC*.
 ○ Project: Image smoothing for structure extraction [poster](#)
 ○ Next position: Firmware engineer at Intel Corporation
- Fall 2012 **Sakshi Srivastava**, *ECE, UIUC*.
 ○ Project: Face expression enhancement [poster](#) [Best PURE project award](#)
 ○ Next position: PhD student at University of Illinois, Urbana-Champaign
- Spring 2012 **Kevin Han**, *ECE, UIUC*.
 ○ Project: Static and dynamic hand gesture recognition [poster](#) [demo](#) [code](#)
 ○ Next position: PhD student at UC Berkeley
- Spring 2012 **Danyang (Mike) Wang**, *ECE, UIUC*.
 ○ Project: Real-time face detection, tracking and attribute recognition [poster](#)
 ○ Next position: Master student at University of Illinois, Urbana-Champaign

Former Visiting Students

- Spring 2019 **Yun-Chun Chen**, *B.S. student*, National Taiwan University.
 ○ Now PhD student at University of Toronto (Advisor: Animesh Garg)
- Spring 2019 **Meng-Li Shih**, *B.S. student*, National Tsing Hua University.
- Spring 2019 **Jin-Dong Dong**, *B.S. student*, National Tsing Hua University.
 ○ Now PhD student at CMU
- Summer 2018 **Wei-Yu Chen**, *B.S. student*, National Taiwan University.
 ○ Now PhD student at CMU

- Summer 2017 **Yen-Chen Lin**, *B.S. student*, National Tsing Hua University.
 ◦ Now PhD student at MIT (Advisor: Phillip Isola and Alberto Rodriguez)
- Summer 2017 **Hao-Wei Yeh**, *Ph.D. student*, University of Tokyo.
 ◦ Now PhD student at University of Tokyo
- Summer 2017 **Chen Gao**, *M.S. student*, University of Michigan, Ann Arbor.
 ◦ Now PhD student at Virginia Tech (Advisor: Jia-Bin Huang)

Teaching Experiences

- Fall 2020 **ECE/CS 6524 Deep Learning.**
- Spring 2020 **ECE 5424/CS 5824 Machine Learning.**
- Fall 2019 **ECE/CS 6524 Deep Learning.**
- Spring 2019 **ECE 5424/CS 5824 Advanced Machine Learning.**
- Fall 2018 **ECE 5554/4554 Computer Vision.**
- Spring 2018 **ECE 1754 Introduction to Programming.**
- Fall 2017 **ECE 5554/4554 Computer Vision.**
- Spring 2017 **ECE 6554 Advanced Computer Vision.**
- Fall 2016 **ECE 5554/4554 Computer Vision.**
- Fall 2015 **Guest Lecture, CS 445 Computational Photography**, *Computer Science, University of Illinois, Urbana-Champaign.*
 ◦ Linear Algebra and MATLAB Tutorial [📄 slide](#)
- Spring 2015 **Teaching Assistant of ECE 549/CS 543 Computer Vision with Prof. Derek Hoiem**, *Computer Science, University of Illinois, Urbana-Champaign.*
 ◦ Designed and developed 4 new homework problems. [📄 course website](#)
 ◦ Created a curated list of computer vision resources. [📄 Awesome Computer Vision](#)
 ◦ Covered two lectures and one MATLAB tutorial:
 1. Image features and categorization [📄 slide](#)
 2. Convolutional neural networks [📄 slide](#)
 3. Writing fast MATLAB code [📄 slide](#)

Academic Services

- Journal Reviewer International Journal of Computer Vision (**IJCV**)
 ACM Computing Surveys (**CSUR**)
 IEEE Pattern Analysis and Machine Intelligence (**TPAMI**)
 IEEE Transactions on Image Processing (**TIP**)
 IEEE Transactions on Visualization and Computer Graphics (**TVCG**)
 Computer Vision and Image Understanding (**CVIU**)
 IEEE Transactions on Circuits and Systems for Video Technology (**CSVT**)
 IEEE Transactions on Multimedia (**TMM**)
 The Visual Computer (**TVC**)
 ACM Transactions on Intelligent Systems and Technology (**ACM TIST**)
 Image and Vision Computing Journal (**IVC**)
 Journal of Selected Topics in Signal Processing (**JSTSP**)

Conference	IEEE Conference on Computer Vision (ICCV 2015, 2017)
Reviewers	IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2015 – 2018) European Conference on Computer Vision (ECCV 2016, 2018) British Machine Vision Conference (BMVC 2017 – 2018) SIGGRAPH Asia (SigAsia 2014 –) Eurographics (EG 2014 – 2015) IEEE Conference on Computational Photography (ICCP 2015) Neural Information Processing Systems (NeurIPS 2015, 2018, 2019) Asian Conference on Computer Vision (ACCV 2014) Winter Conference on Computer Vision (WACV 2014 – 2017) International Conference on Multimedia & Expo (ICME 2015) Visual Communication and Image Processing (VCIP 2012 – 2016) Conference on Graphics, Patterns and Images (SIBGRAPI 2014 – 2015) Pacific Graphics 2014 (PG 2014 – 2015) International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2014 – 2016) Eye Tracking and Research Applications (ETRA 2014, 2016)
Area Chair	International Conference on Computer Vision (ICCV 2021) Association for the Advancement of Artificial Intelligence (AAAI 2021) International Conference on Computer Vision (ICCV 2019) IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2019) British Conference on Machine Vision (BMVC 2019) Winter Conference on Computer Vision (MVA 2018) IAPR International Conference on Machine Vision Applications (MVA 2016)
Research Mentor	Research Mentor for UIUC Promoting Undergrad Research in Engineering (P.U.R.E.) program, Spring 2012, Fall 2012 (Best Mentor of the semester), Spring 2013, and Fall 2014. link
Professional Societies	IEEE member ACM member ACM SIGGRAPH member
Webmaster	Computer Vision Taiwanese Group (more than 5,000 members) link Awesome Computer Vision link Computer Vision Genealogy link

References

M.S./Ph.D. Advisor	Narendra Ahuja , <i>Donald Biggar Willet Professor in Department of Electrical and Computer Engineering</i> , University of Illinois, Urbana-Champaign. ✉ n-ahuja@illinois.edu link homepage
Research Mentor	Ming-Hsuan Yang , <i>Professor of Electric Engineering and Computer Science</i> , University of California, Merced. ✉ mhyang@ucmerced.edu link homepage
Research Mentor	Johannes Kopf , <i>Research Scientist Manager</i> , Facebook. ✉ jkopf@fb.com link homepage
Research Mentor	Richard Szeliski , <i>Research Scientist</i> , Facebook. ✉ szeliski@fb.com link homepage
Thesis Committee	Derek Hoiem , <i>Associate Professor in Department of Computer Science</i> , University of Illinois, Urbana-Champaign. ✉ dhoiem@uiuc.edu link homepage