

Assistant Professor  
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### Summary (all from ASU, till Oct 2021)

Funding - Total External:  $\sim$  6.5M; Total PI/co-PI Recognition:  $\sim$  3.2M; as PI:  $\sim$  2.5M;  
 Publication - Top CS venues recognized by CSrankings.org: 25; Journals: 11;  
 Education - Ph.D. graduated: 1 (chair), 2 (co-chair);  
 Master thesis graduated: 11 (chair), 1 (co-chair);  
 Teaching: 2021 Fulton Engineering Schools' TOP 5% Best Teachers recognition;  
 Tech-transfer - Patents: 4 (filed), 1 (pending); Founded Start-up: 1 (ARGOS Vision Corporation).

### EDUCATION

<i>Ph.D.</i> , Computer Science	University of Maryland, College Park, MD, USA	
Thesis: Manipulation Action Understanding for Observation and Execution		Dec. 2015
Yiannis Aloimonos, (Chair), Cornelia Fermüller (Co-chair)	John Baras, Hal Daumé III, Don Perlis.	
<i>M.S.</i> , Computer Science	University of Maryland, College Park, MD, USA	May. 2013
<i>B.E.</i> , Computer Science	Zhejiang University, Hangzhou, Zhejiang, China	June 2010

### PROFESSIONAL/RESEARCH EXPERIENCE

*Assistant Professor, School of Computing, Informatics, and Decision Systems Engineering,*  
*Arizona State University* Aug 2016 – Now

Honors Faculty, Barrett, the Honors College  
 Founder and Director, ASU Active Perception Group (APG)  
*Tech co-Lead, Institute of Automated Mobility, Arizona Commerce Authority* Aug 2019 – Now

*Postdoctoral Associate, Computer Vision Lab, University of Maryland* Dec 2015 – Aug 2016

- Developing original algorithms for robot visual learning systems, mentoring undergraduate and graduate students for academic projects and leading a group of students for implementing a robotic house assistant system.

*Graduate Research Assistant, Computer Vision Lab, University of Maryland* 2010 – 2015

- Computer Vision, Robot Vision, especially exploring visual primitives in human action understanding from visual input, grounding them by natural language as well as high-level reasoning over the primitives for intelligent agents, aka. Robots.

*Teaching Assistant, Computer Science, University of Maryland* Aug 2010 – July 2011

- Taught Windows based and Linux based Operating Systems courses.

*Undergraduate Research Assistant, Visual Interaction and Perception Analysis group, Eagle Lab,*  
*Zhejiang University* August 2008 – August 2010

- Worked on visual attention analysis from image statistics and its applications.

*Undergraduate Team Member, Robocup Humanoid team, National Key Lab of Control Technology, Zhejiang University* September 2007 – August 2010

- Worked on vision system for humanoid robots, including object recognition and tracking, robot localization and linux based realtime vision system development. Member of Robocup 2009 humanoid league team (ZJUDancer, final 8).

### SELECTED AWARDS AND HONORS

- The NSF Faculty Early Career Development (CAREER) Award (NSF IIS Robust Intelligence Program #1750082), 2018-2023. The winning project was “CAREER: Visual Recognition with Knowledge”
- 2021 Fulton Engineering Schools’ TOP 5% Best Teachers recognition
- Samsung Research Center (SEC) Faculty Collaboration Research (2021: 200k\$ total).
- Amazon AWS Machine Learning Research Award (2019: 40k\$ + 30k\$ AWS research credits).
- Team leader, the first AI world cup (KAIST), AI commentator track winner (with 5k\$ prize).
- Verisk AI faculty research award (2017: 40k\$ and 2018: 50k\$).
- The 2018 round of the inaugural Global Sport Institute (GSI) “Sports 2036” Grant. The winning topic was “Non-invasive Performance Tracking with Smart Cameras”, 2018.
- Adobe University research collaboration awards, summer, fall 2017, spring 2018, fall 2018.
- ASU The Keen Professorship, spring and fall 2017. The winning topic was “Inspiring the Entrepreneurial Desire in a Perception and Robotics Course”.
- Qualcomm innovation fellowship winner, 2011. The winning research was “Robots Need Language: A computational model for the integration of vision, language and action”.
- Dean’s Fellowship, Computer Science Department, University of Maryland College Park, 2010, 2011.
- Excellent Bachelor Thesis, Zhejiang University, China. Thesis: *Natural Image Statistics and Low Level Feature based Visual Attention Analysis*, September 2010.
- Microsoft Research Asia Young Researcher Scholarship, Microsoft Research Asia, May 2009.
- Member of Robocup team ZJUDancer, Champion at ChinaOpen humanoid league , 2008-2010; Top eight at World Cup humanoid league, 2009 and 2010.

### SELECTED MEDIA CONVERAGE

- Engineering Evolutionary Steps in Automated Mobility
- Researchers demo VR finger tracking that recognizes air-drawn passcodes
- Artificial intelligence changes how athletes and fans experience sports. GlobalSport Matters
- Robot See, Robot Do: How Robots Can Learn New Tasks by Observing. MIT Tech. Review.
- Teaching a robot to ‘cook’ by showing it YouTube videos of cooking shows. Robohub.
- Step aside, Bourdain. Robot learns to cook by watching YouTube videos. Diamondback
- Robot Learns to Cook from YouTube Videos. Discover Magazine.

**PUBLICATIONS AND INTELLECTUAL PROPERTY**

(In reverse chronological sequence)

Co-Editor for Books

- 1 Co-Author, Fundamentals of Connected and Automated Vehicles, to be published by SAE

Co-Editor for Thematic Journal Issues

- 1 Associate Editor IEEE Robotics and Automation Letters [2019 Impact factor: 3.6]
- 2 Algorithms and Technologies towards Robotic Food Manipulation. Co-editor, Frontiers journal Special Research Topic.
- 3 Special Issue on Semantic Policy and Action Representations for Autonomous Robots, special issue of Robotics and Autonomous Systems. Karinne Ramirez-Amaro, Yezhou Yang, Neil T. Dantam, Eren Erdal Aksoy and Gordon Cheng. Editor-in-Chief: Gaurav Sukhatme. Publication: Nov. 2018. [2017 Impact factor: 2.638]
- 4 Fine-grained Visual Understanding and Reasoning, special issue of Neurocomputing (Elsevier). Jun Yu, Yezhou Yang, Fionn Murtagh, Xinbo Gao. Publication: Jul. 2019. [2017 Impact factor: 3.241]

Journal Publications From ASU (Published, In Press, and/or Accepted)

- JA1 **Ye, Xin**, and Yezhou Yang\*. Efficient Robotic Object Search via HIEM: Hierarchical Policy Learning with Intrinsic-Extrinsic Modeling. *IEEE Robotics and Automation Letters* 6, no. 3 (2021): 4425-4432.
- JA2 Gunasekar, Kausic, Qiang Qiu, and Yezhou Yang\*. Low to High Dimensional Modality Hallucination Using Aggregated Fields of View. *IEEE Robotics and Automation Letters* 5, no. 2 (2020): 1983-1990.
- JA3 **Xin Ye**, Zhe Lin, Joon-Young Lee, Jianming Zhang, Shibin Zheng, Yezhou Yang\*. GAPLE: Generalizable Approaching Policy LEarning for Robotic Object Searching in Indoor Environment, *IEEE Robotics and Automation Letters* 4, no. 4 (2019): 4003-4010.
- JA4 **Xin Ye**, Zhe Lin, Yezhou Yang\*. Robot Learning of Manipulation Activities with Overall Planning through Precedence Graph, *the Special Issue on Semantic Policy and Action Representations for Autonomous Robots, Robotics and Autonomous Systems* 116 (2019): 126-135.
- JA5 Ramirez-Amaro, Karinne\*, Yezhou Yang, and Gordon Cheng. A survey on semantic-based methods for the understanding of human movements. *Robotics and Autonomous Systems* 119 (2019): 31-50.
- JA6 Jing, Yongcheng, Yezhou Yang, Zunlei Feng, Jingwen Ye, Yizhou Yu, and Mingli Song\*. "Neural style transfer: A review." *IEEE transactions on visualization and computer graphics* 26, no. 11 (2019): 3365-3385.
- JA7 **Izadyyazdanabadi, Mohammadhassan** and Belykh, Evgenii and Mooney, Michael and Martirosyan, Nikolay and Eschbacher, Jennifer and Nakaji, Peter and Preul, Mark C and Yang, Yezhou\*. Convolutional Neural Networks: Ensemble Modeling, Fine-Tuning and Unsupervised Semantic Localization for Neurosurgical CLE Images, *Journal of Visual Communication and Image Representation (JVCI)*, Vol. 50, Page 10-20, 2018

- JA8 **Somak Aditya**, Chitta Baral, Yezhou Yang, Cornelia Fermuller, Yiannis Aloimonos\*. Image Understanding using vision and reasoning through Scene Description Graph., *Journal of Computer Vision and Image Understanding (CVIU)* (2018)
- JA9 **Izadyyazdanabadi, Mohammadhassan**, Evgenii Belykh, Michael Mooney, Jennifer Eschbacher, Peter Nakaji, Yezhou Yang, and Mark Preul\*. "Prospects for Theranostics in Neurosurgical Imaging: Empowering Confocal Laser Endomicroscopy Diagnostics via Deep Learning." *Frontiers in Oncology* 8 (2018): 240.
- JA10 Cornelia Fermuller\*, Fang Wang, Yezhou Yang, Konstantinos Zampogiannis, Yi Zhang, Francisco Barranco, Michael Pfeiffer. Prediction of Manipulation Actions, *International Journal of Computer Vision (IJCV)*, Vol. , No. , 2017
- JA11 **Mohammadhassan Izadyyazdanabadi**, Evgenii Belykh, Nikolay Martirosyan, Jennifer Eschbacher, Peter Nakaji, Yezhou Yang, and Mark C. Preul\*. Improving utility of brain tumor confocal laser endomicroscopy: objective value assessment and diagnostic frame detection with convolutional neural networks. *Proc. SPIE*, 2017.

#### Journal Publications Prior to ASU (Published, In Press, and/or Accepted)

- JP1 Yezhou Yang\*, Cornelia Fermuller and Yiannis Aloimonos. A Cognitive System for Understanding Human Manipulation Actions, *Advances in Cognitive Systems, Volume 3, page 47-67*.
- JP2 E. E. Aksoy, E. Ovchinnikova, A. Orhan, Yezhou Yang and T. Asfour\*. Unsupervised Linking of Visual Features to Textual Descriptions in Long Manipulation Activities, *IEEE Robotics and Automation Letters (RA-L) with ICRA presentation, Vol. , No. , 2017*
- JP3 Mingli Song\*, Dapeng Tao, Chun Chen, Jiajun Bu, Yezhou Yang. Color-to-gray based on chance of happening preservation, *Neurocomputing*, 2013.
- JP4 Mingli Song\*, Chun Chen, Senlin Wang, Yezhou Yang. Low-Level and High-Level Prior Learning for Visual Saliency Estimation, *Information Sciences*, 2013.

#### Journal Editorials

- 1 Yu, Jun, Yezhou Yang, Fionn Murtagh, and Xinbo Gao. "Fine-grained visual understanding and reasoning." *Neurocomputing* 398 (2020): 408-410.

#### Refereed Conference Publications From ASU

- CA1 Banerjee, Pratyay, **Tejas Gokhale**, Yezhou Yang, and Chitta Baral. "Weakly Supervised Relative Spatial Reasoning for Visual Question Answering." *International Conference on Computer Vision (ICCV)* 2021.
- CA2 **Fang, Zhiyuan**, Jianfeng Wang, Lijuan Wang, Lei Zhang, Yezhou Yang, and Zicheng Liu. "Compressing Visual-linguistic Model via Knowledge Distillation." the *International Conference on Computer Vision (ICCV)* 2021.
- CA3 **Feinglass, Joshua**, and Yezhou Yang. "SMURF: SeMantic and linguistic UndeRstanding Fusion for Caption Evaluation via Typicality Analysis." *the annual meeting of the Association for Computational Linguistics (ACL)* 2021.
- CA4 Banerjee, Pratyay, **Tejas Gokhale**, Yezhou Yang, and Chitta Baral. "WeaQA: Weak Supervision via Captions for Visual Question Answering." *the annual meeting of the Association for Computational Linguistics (ACL)* 2021, Findings

- CA5 **Ye, Xin**, and Yezhou Yang. "Hierarchical and partially observable goal-driven policy learning with goals relational graph." *the International Conference on Computer Vision and Pattern Recognition (CVPR)*, 2021
- CA6 **Ye, Xin**, and Yezhou Yang. "Efficient Robotic Object Search via HIEM: Hierarchical Policy Learning with Intrinsic-Extrinsic Modeling." *IEEE International Conference on Robotics and Automation (ICRA)* 2021.
- CA7 Lu, Duo, **Varun C. Jammula**, Steven Como, Jeffrey Wishart, Yan Chen, and Yezhou Yang. "CAROM-Vehicle Localization and Traffic Scene Reconstruction from Monocular Cameras on Road Infrastructures." *IEEE International Conference on Robotics and Automation (ICRA)* 2021.
- CA8 **Kim, Changhoon**, Yi Ren, and Yezhou Yang. "Decentralized Attribution of Generative Models." the International Conference on Learning Representations (ICLR) (2021).
- CA9 **Fang, Zhiyuan**, Jianfeng Wang, Lijuan Wang, Lei Zhang, Yezhou Yang, and Zicheng Liu. "SEED: Self-supervised Distillation For Visual Representation." the International Conference on Learning Representations (ICLR) (2021).
- CA10 **Gokhale, Tejas**, Rushil Anirudh, Bhavya Kailkhura, Jayaraman J. Thiagarajan, Chitta Baral, and Yezhou Yang. "Attribute-Guided Adversarial Training for Robustness to Natural Perturbations." *In Proceedings of the AAAI Conference on Artificial Intelligence*, 2021.
- CA11 **Sampat, Shailaja Keyur**, Akshay Kumar, Yezhou Yang, and Chitta Baral. "CLEVR\_HYP: A Challenge Dataset and Baselines for Visual Question Answering with Hypothetical Actions over Images." *2021 Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL)* 2021.
- CA12 **Fang, Zhiyuan, Tejas Gokhale**, Pratyay Banerjee, Chitta Baral, and Yezhou Yang. Video2commonsense: Generating commonsense descriptions to enrich video captioning. *Conference on Empirical Methods in Natural Language Processing (EMNLP)* 2020.
- CA13 **Tejas Gokhale**, Pratyay Banerjee, Chitta Baral, and Yezhou Yang. MUTANT: A Training Paradigm for Out-of-Distribution Generalization in Visual Question Answering. *Conference on Empirical Methods in Natural Language Processing (EMNLP)* 2020.
- CA14 **Sampat, Shailaja**, Yezhou Yang, and Chitta Baral. Diverse Visuo-Linguistic Question Answering (DVLQA) Challenge. *Conference on Empirical Methods in Natural Language Processing (EMNLP) 2020, Findings*.
- CA15 **Tejas Gokhale**, Pratyay Banerjee, Chitta Baral, and Yezhou Yang. VQA-LOL: Visual question answering under the lens of logic. *European Conference on Computer Vision (ECCV)* 2020
- CA16 **Zhiyuan Fang**, Zhe Wang, Jun Wang, and Yezhou Yang. ViTAA: Visual-Textual Attributes Alignment in Person Search by Natural Language. *European Conference on Computer Vision (ECCV)* 2020
- CA17 **Bajestani, Mohammad Farhadi**, Yezhou Yang. TKD: Temporal Knowledge Distillation for Active Perception. *The IEEE Winter Conference on Applications of Computer Vision (WACV)*, 2020
- CA18 **Zhiyuan Fang**, Shu Kong, Charless Fowlkes, Yezhou Yang. Modularized Textual Grounding for Counterfactual Resilience, *the International Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019

- CA19 **Aditya, Somak**, Yezhou Yang, and Chitta Baral. Integrating Knowledge and Reasoning in Image Understanding. *In the 28th International Joint Conference on Artificial Intelligence (IJCAI), 2019.*
- CA20 **Aditya, Somak**, Rudra Saha, Yezhou Yang, and Chitta Baral. Spatial Knowledge Distillation to aid Visual Reasoning. *In 2019 IEEE Winter Conference on Applications of Computer Vision (WACV), pp. 227-235. IEEE, 2019.*
- CA21 Ren, Yi, Steven Elliott, Yiwei Wang, Yezhou Yang, and Wenlong Zhang. "How Shall I Drive? Interaction Modeling and Motion Planning towards Empathetic and Socially-Graceful Driving." *IEEE International Conference on Robotics and Automation (ICRA) 2019.*
- CA22 **Xin Ye**, Zhe Lin, Haoxiang Li, Shibin Zheng and Yezhou Yang. Active Object Perceiver: Recognition-guided Policy Learning for Object Searching on Mobile Robots, *the IEEE/RSJ International Conference on Intelligent Robots and Systems, 2018*
- CA23 **Somak Aditya**, Yezhou Yang, Chitta Baral, Yiannis Aloimonos. Combining Knowledge and Reasoning through Probabilistic Soft Logic for Image Puzzle Solving , *Conference on Uncertainty in Artificial Intelligence (UAI), 2018*
- CA24 **Mohammadhassan Izadyyazdanabadi**1, Evgenii Belykh, Claudio Cavallo, Xiao-chun Zhao, Sirin Gandhi, Leandro Borba Moreira, Jennifer Eschbacher, Peter Nakaji, Mark C. Preul and Yang, Yezhou\*. Weakly-Supervised Learning-Based Feature Localization in Confocal Laser Endomicroscopy Glioma Images., *21st International Conference On Medical Image Computing & Computer Assisted Intervention (MICCAI) 2018*
- CA25 Zunlei Feng, Zhenyun Yu, Yezhou Yang, Yongcheng Jing, Junxiao Jiang, and Mingli Song\*. "Interpretable Partitioned Embedding for Customized Multi-item Fashion Outfit Composition." *In Proceedings of the 2018 ACM on International Conference on Multimedia Retrieval, pp. 143-151. ACM, 2018.*
- CA26 Jie Song, Chengchao Shen, Yezhou Yang, Yang Liu, and Mingli Song\*. Transductive Unbiased Embedding for Zero-Shot Learning. *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR) 2018.*
- CA27 **Simon Stepputtis**, Yezhou Yang, Heni Ben Amor. Extrinsic Dexterity through Active Slip Control using Deep Predictive Models, *IEEE International Conference on Robotics and Automation (ICRA) 2018.*
- CA28 **Somak Aditya**, Yezhou Yang, Chitta Baral. Explicit Reasoning over End-to-End Neural Architectures for Visual Question Answering, *the Thirty-Second AAAI Conference on Artificial Intelligence 2018.*
- CA29 Zhang, Wenlong, Yezhou Yang, and Yi Ren. "Towards Understanding Human Decisions in Human-Robot Interactions." *In ASME 2017 Dynamic Systems and Control Conference, pp. V001T30A009-V001T30A009. American Society of Mechanical Engineers, 2017.*
- CA30 Wang, Yiwei, **Xin Ye**, Yezhou Yang, and Wenlong Zhang. "Collision-free trajectory planning in human-robot interaction through hand movement prediction from vision." *In Humanoid Robotics (Humanoids), 2017 IEEE-RAS 17th International Conference on, pp. 305-310. IEEE, 2017.*
- CA31 Chengxi Ye, Yezhou Yang, Cornelia Fermuller, Yiannis Aloimonos. What Can I Do Around Here? Deep Functional Scene Understanding for Cognitive Robots, *IEEE International Conference on Robotics and Automation (ICRA) 2017.*

- CA32 Wentao Luan, Yezhou Yang, Cornelia Fermuller, John Baras. Fast Task-Specific Target Detection via Graph Based Constraints Representation and Checking, *IEEE International Conference on Robotics and Automation (ICRA) 2017*.
- CA33 Wentao Luan, Yezhou Yang, Cornelia Fermuller, John Baras. Reliable Attribute-Based Object Recognition Using High Predictive Value Classifiers, *European Conference on Computer Vision (ECCV) 2016*.
- CA34 Ren Mao, John Baras, Yezhou Yang, Cornelia Fermuller. Co-active Learning to Adapt Humanoid Movement for Manipulation, *IEEE-RAS International Conference on Humanoid Robots (Humanoids) 2016*.

Refereed Conference Publications Prior to ASU

- CP1 Somak Aditya, Chitta Baral, **Yezhou Yang**, Cornelia Fermuller, Yiannis Aloimonos. DeepIU: An Architecture for Image Understanding, *Advances in Cognitive Systems (ACS) 2016*.
- CP2 Chengxi Ye, Chen Zhao, **Yezhou Yang**, Cornelia Fermuller, Yiannis Aloimonos. LightNet: A Versatile, Standalone Matlab-based Environment for Deep Learning, *The Open Source Software Competition, ACM MM 2016*.
- CP3 **Yezhou Yang**, Cornelia Fermuller, Yiannis Aloimonos and Eren Erdal Aksoy. Learning the Semantics of Manipulation Action, *the annual meeting of the Association for Computational Linguistics (ACL) 2015*.
- CP4 **Yezhou Yang**, Cornelia Fermuller, Yi Li and Yiannis Aloimonos. Grasp Type Revisited: A Modern Perspective on A Classical Feature for Vision, *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR) 2015*.
- CP5 Yi Zhang, **Yezhou Yang**, Cornelia Fermuller and Yiannis Aloimonos. Does the grasp type reveal action intention? *The Vision Sciences Society Annual Meeting (VSS) 2015*.
- CP6 Konstantinos Zampogiannis, **Yezhou Yang**, Cornelia Fermuller and Yiannis Aloimonos. Learning the Spatial Semantics of Manipulation Actions through Preposition Grounding, *IEEE International Conference on Robotics and Automation (ICRA) 2015*.
- CP7 Somak Aditya, **Yezhou Yang**, Chitta Baral, Cornelia Fermuller, Yiannis Aloimonos. Visual common-sense for scene understanding using perception, semantic parsing and reasoning. *Common-sense, AAAI Spring Symposium 2015*.
- CP8 **Yezhou Yang**, Yi Li, Cornelia Fermuller and Yiannis Aloimonos. Robot Learning Manipulation Action Plans by “Watching” Unconstrained Videos From the World Wide Web, *The Twenty-Ninth AAAI Conference on Artificial Intelligence (AAAI) 2015*.
- CP9 **Yezhou Yang**, Anupam Guha, Cornelia Fermuller and Yiannis Aloimonos. Manipulation Action Tree Bank: A Knowledge Resource for Humanoids, *IEEE-RAS International Conference on Humanoid Robots (HUMANOIDS) 2014*.
- CP10 Ren Mao, **Yezhou Yang**, Cornelia Fermuller, Yiannis Aloimonos and John Baras. Learning Hand Movements from Markerless Demonstrations for Humanoid Tasks, *IEEE-RAS International Conference on Humanoid Robots (HUMANOIDS) 2014*.
- CP11 **Yezhou Yang**, Cornelia Fermuller and Yiannis Aloimonos. Detection of Manipulation Action Consequences (MAC), *International Conference on Computer Vision and Pattern Recognition (CVPR) 2013*.

- CP12 **Yezhou Yang**, Ching L. Teo, Cornelia Fermuller and Yiannis Aloimonos. Robots with Language: Multi-Label Visual Recognition Using NLP, *IEEE International Conference on Robotics and Automation (ICRA) 2013*.
- CP13 Anupam Guha, **Yezhou Yang**, Cornelia Fermuller and Yiannis Aloimonos. Minimalist Plans for Interpreting Manipulation Actions, *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2013*.
- CP14 Xiaodong Yu, C. L. Teo, **Yezhou Yang**, Cornelia Fermuller and Yiannis Aloimonos. Action Attribute Detection from Sports Videos with Contextual Constraints, *British Machine Vision Conference (BMVC) 2013*.
- CP15 Douglas Summers-Stay, Ching L. Teo, **Yezhou Yang**, Cornelia Fermuller and Yiannis Aloimonos. Using a Minimal Action Grammar for Activity Understanding in the Real World, *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2012*.
- CP16 Ching L. Teo, **Yezhou Yang**, Cornelia Fermuller, Yiannis Aloimonos. Synergistic Methods for using Language in Robotics *PerMIS 12*.
- CP17 Ching L. Teo, **Yezhou Yang**, Hal Daume III and Yiannis Aloimonos. Towards a Watson That Sees: Language-Guided Action Recognition for Robots, *IEEE International Conference on Robotics and Automation (ICRA) 2012*.
- CP18 Xiaodong Yu, Ching L. Teo, **Yezhou Yang**, Cornelia Fermuller, Yiannis Aloimonos. Active Scene Recognition with Vision and Language. *International Conference on Computer Vision (ICCV) 2011*.
- CP19 **Yezhou Yang**, Ching L. Teo, Hal Daume III and Yiannis Aloimonos. Corpus-Guided Sentence Generation of Natural Images, *Conference on Empirical Methods in Natural Language Processing (EMNLP) 2011*.
- CP20 Ching L. Teo, **Yezhou Yang**, Hal Daume III, Cornelia Fermuller and Yiannis Aloimonos. A Corpus-Guided Framework for Robotic Visual Perception. *AAAI Workshop on Language-Action Tools for Cognitive Artificial Agents. 2011*.
- CP21 **Yezhou Yang**, M. Song, J. Bu, C. Chen, C. Jin. Color to Gray: Attention Preservation, *Fourth Pacific-Rim Symposium on Image and Video Technology (PSIVT) 2010*.
- CP22 **Yezhou Yang**, M. Song, N. Li, J. Bu, C. Chen. What is the Chance of Happening: A New Way to Predict Where People Look, *European Conference on Computer Vision (ECCV) 2010*.
- CP23 **Yezhou Yang**, M. Song, N. Li, J. Bu, C. Chen. Visual attention analysis by pseudo gravitational field, *the seventeen ACM international conference on Multimedia (ACMMM) 2009*.

Manuscripts Submitted / In Revision from ASU

- 1 CAVAN: Commonsense Knowledge Anchored Video Captioning, under review, EMNLP 2021
- 2 Action-conditioned Learning to Extract Structured Events from Videos, under review, ICCV 2021
- 3 Compressing Visual-linguistic Model via Knowledge Distillation, under review, ICCV 2021
- 4 Tragedy Plus Time: Capturing Unintended Human Activities from Weakly-Labeled Videos, under review, ICCV 2021
- 5 Robust Vision-and-Language Inference via Semantics-Transformed Adversarial Training, under review, ICCV 2021



- 6 Weakly Supervised Relative Spatial Reasoning for Visual Question Answering, under review, ICCV 2021
- 7 ARGOS: an Adaptive and ReGion-scale knowledge distillation for Object recognition Systems, under review, IROS 2021
- 8 Online Prediction for Vision-based Active Pursuit using a Domain Agnostic Offline Motion Model, under review, IROS 2021
- 9 Learning to Targeted Attack on Autonomous Driving with Physically Realizable Patterns, under review, IROS 2021

Manuscripts in Preparation from ASU (to be submitted before Dec 2021)

- 1 From seeing to moving: A survey on learning for visual indoor navigation (VIN). In preparation to ACM Computing Surveys.
- 2 Decentralized Attribution of Generative Models. In preparation to PNAS.

Intellectual Property from ASU

- PA1 Evgenii Belykh, **Mohammadhassan Izady Yazdanabadi**, Mark Preul, Yezhou Yang, “Histology Style Transfer for Confocal Laser Endomicroscopy Images”, PCT/US20/15332 filed Jan 28th 2020.
- PA2 Qiushi Fu, Yezhou Yang, and Marco Santello. “Computer-Vision-Based Clinical Assessment of Upper Extremity Function.”, US Patent number 10,849,532 Filed.
- PA3 **Farhadi, Mohammad**, and Yezhou Yang, “TKD: Temporal Knowledge Distillation for Active Perception”, Provisional patent filed.
- PA4 **Kim, Changhoon**, Yi Ren, and Yezhou Yang. “Decentralized Attribution of Generative Models”, Pending.
- PA5 Wang, Yiwei, **Xin Ye**, Yezhou Yang, and Wenlong Zhang. “Collision-free trajectory planning in human-robot interaction through hand movement prediction from vision.”, Pending.

Intellectual Property prior to ASU

- PP1 Aloimonos, Yiannis, Cornelia Fermuller, Yezhou Yang, Yi LI, and Katerina Pastra. “LEARNING MANIPULATION ACTIONS FROM UNCONSTRAINED VIDEOS.” U.S. Patent Application 15/011,025, filed August 4, 2016.

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**INVITED TALKS/PRESENTATIONS**Invited Presentations - External

- 1 University Research session talk "towards Robust and Socially-Adept Autonomous Vehicles Through Vehicle Trajectory Sensing for Safety Assessment, ITS AZ conference, Mesa, AZ; Sep, 2021
- 2 AI and Art talk "Perceiving beyond Visual Appearances: from Artistic techniques towards Robust AI", at Computer Science department at University of Luxembourg, online seminar on AI & Art; May, 2021
- 3 Tech talk "Visual Recognition beyond Appearance, and its Robotic Applications ", at UC Santa Cruz Multimodal Deep Learning Seminar Series; May, 2021
- 4 Tech talk "Visual Recognition beyond Appearance, and its Robotic Applications ", at AiBee AI Seminar series; April, 2021
- 5 Tech talk "Visual Recognition beyond Appearance, and its Robotic Applications ", at Michigan State University CS department seminar; April, 2021.
- 6 Tech talk "Visual Recognition beyond Appearance, and its Robotic Applications ", at UPenn Grasp Lab Seminar March, 2021.
- 7 Tech talk "Visual Recognition beyond Appearance, and its Robotic Applications ", at ML Seminar at Oregon State University; March, 2021.
- 8 Tech talk "Visual Recognition beyond Appearance, and its Robotic Applications ", at ML Seminar at UIUC; March, 2021.
- 9 Tech talk "Visual Recognition beyond Appearance, and its Robotic Applications ", at ML Seminar at Purdue; Feb, 2021.
- 10 Tech talk "Visual Recognition beyond Appearance, and its Robotic Applications ", at ML Seminar at Facebook AI Research; Feb, 2021.
- 11 Tech talk "Visual Recognition beyond Appearance, and its Robotic Applications ", at NLP Seminar at UCSB; Feb, 2021.
- 12 Tech talk "Visual Recognition beyond Appearance, and its Robotic Applications ", at NLP Seminar at University of Southern California, Information Sciences Institute; Jan, 2021.
- 13 Tech talk "Visual Recognition beyond Appearance, and its Robotic Applications ", at ML/big data Seminar at UCLA; Jan, 2021.
- 14 Tech talk "Visual Recognition beyond Appearance, and its Robotic Applications ", at ML/AI Seminar at University of California Irvine; Jan, 2021.
- 15 Tech talk "Visual Recognition beyond Appearance, and its Robotic Applications ", at Robotics Special Seminar at University of Maryland College Park; Dec, 2020.
- 16 Tech Talk "Towards Robust and Socially-Adept Autonomous Vehicles and Vehicle Trajectory Sensing using Existing Monocular Traffic Cameras for Safety Assessment" at the WORKSHOP ON AUTOMATED VEHICLE SAFETY: VERIFICATION, VALIDATION AND TRANSPARENCY collocated with IEEE ITSC Sep, 2020;
- 17 Tech Talk "Vehicle Trajectory Sensing using Existing Monocular Traffic Cameras for Safety Assessment" at the Automated Vehicles Symposium (AVS) breakout session on Safety Assurance of Automated Driving, July, 2020;

- 18 Tech Talk “Visual Recognition with Knowledge: from an Active Agent’s Perspective”, at the 2019 Telluride Neuromorphic Engineering workshop, Telluride, CO, July 2019;
- 19 Tutorial Talk “Machine Common Sense: from Developmental Psychology’s perspective”, at the 2019 Telluride Neuromorphic Engineering workshop, Telluride, CO, July 2019;
- 20 Tech Talk “Visual Recognition with Knowledge: from an Active Agent’s Perspective”, at the GigaVision workshop collocated with CVPR 2019, Los Angeles, CA, June 2019;
- 21 Tech Talk “Active Perception Beyond Appearance, and its Robotic Applications”, at the ARL workshop, Austin, Texas, Jan 2019;
- 22 Tech talk “Recognition Beyond Appearance, and its Robotic Applications” 3rd Workshop on Semantic Policy and Action Representations for Autonomous Robots (SPAR) October 05, 2018 - Madrid, Spain at IROS 2018
- 23 Tech talk “HUMAN-ROBOT INTERACTION AND RECOGNITION: GOING BEYOND APPEARANCE AND ROBOTIC APPLICATIONS”, RoboBusiness Conference, Sep. 26th - San Jose 2018.
- 24 Mini-course “Deep Learning Demystified” at the NSF TRIPODS summer symposium, Tuscon, AZ, May 2018;
- 25 Tech talk “Vision-Language integration challenges and needs in Robotics” at the 3rd integrating Vision and Language training school, Sep 5th, Athens, Greece.
- 26 Tech talk “Active Perception Beyond Appearance, and its Robotic Applications” at the Brain team, Google Inc, June 2017;
- 27 Human Manipulation Action Understanding for Cognitive Robots, at Carnegie Mellon University VASC seminar, May 2016;
- 28 Visual Interpretation of Manipulation Actions part II, at Mid-Atlantic Computer Vision (MACV) Workshop 2016, John Hopkins University, April 2016;
- 29 Human Manipulation Action Understanding for Cognitive Robots, at Princeton Computer Vision Seminar, Feb 2016;
- 30 Grasping type, Action Intention, and Manipulation Semantics, at Institute of Cyber-systems and Control, Zhejiang University, August 2015;
- 31 Visual Interpretation of Manipulation Actions part I, at Mid-Atlantic Computer Vision (MACV) Workshop 2014, Virginia Tech University, April 18th 2014;
- 32 Plenary Socratic Dialogue, the Manipulation Action Language, together with Prof. Yiannis Aloimonos at Humanoids 2013, Oct 17th 2013;

#### Invited Presentations - ASU Internal

- 1 How to crack academic interviews. PostDoc Best Practice faculty talk, at Arizona State University, Nov. 2016;
- 2 Visual Interpretation of Manipulation Actions for Cognitive Robots PostDoc Best Practice faculty research talk, at Arizona State University, Sep. 2016;
- 3 Visual Interpretation of Manipulation Actions for Cognitive Robots at GPUs for Deep Learning and Embedded Technologies Workshop at Arizona State University, June 2016;

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**PROFESSIONAL ACTIVITY and SERVICE**


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Editor, Associate Editor for peer-reviewed journals

- 1 Associate Editor IEEE Robotics and Automation Letters [2019 Impact factor: 3.6]
- 2 Algorithms and Technologies towards Robotic Food Manipulation. Co-editor, Frontiers journal Special Research Topic.
- 3 Special Issue on Semantic Policy and Action Representations for Autonomous Robots, special issue of Robotics and Autonomous Systems. Karinne Ramirez-Amaro, Yezhou Yang, Neil T. Dantam, Eren Erdal Aksoy and Gordon Cheng. Editor-in-Chief: Gaurav Sukhatme. Anticipated publication: Nov. 2018. [2017 Impact factor: 2.638]
- 4 Fine-grained Visual Understanding and Reasoning, special issue of Neurocomputing (Elsevier). Jun Yu, Yezhou Yang, Fionn Murtagh, Xinbo Gao. exp. Anticipated publication: Jul. 2019. [2017 Impact factor: 3.241]

International National Conference Committees

**Conference Area Chair:** AAAI 2020, 2021;

**Conference Associate Editor:** ICRA 2018,2019,2021;

**Conferences Technical Program Committee or Reviewer:** ICML 2019, CVPR 2019-2021, ECCV 2020, ICCV 2019 and 2021, AAAI 2017, 2018, IJCAI 2016,2017, ICRA 2015,2016,2017,2018,2019, Humanoids 2014,2015,2016,2017, IROS 2014,2015,2016,2017,2018,2019, ICME 2013,2014,2015,2016.

International National Seminars and Conference Sessions Organized and/or Chaired

Workshop on “Knowledge Injection in Neural Networks (KINN)”, collocated with CIKM 2021;

Workshop on Deep Learning for Autonomous Robots, collocated with RSS 2016;

The First, Second and Third Workshop on Semantic Policy and Action Representations for Autonomous Robots, collocated with IROS 2015, IROS 2017 and IROS 2018;

First Workshop on Induce and Deduce: Integrating learning of representations and models with deductive, explainable reasoning that leverages knowledge, collocated with KR 2018.

Peer Reviewer for Journals

**Journal Reviewers:** International Journal of Computer Vision (IJCV), Computer Vision and Image Understanding (CVIU), IEEE Transactions on Robotics (T-RO), The Visual Computer, Information Sciences, Neurocomputing, Image and Vision Computing, Journal of Visual Communication and Image Representation, Cognitive Computation, Journal of Sensors, etc.

Pear Reviewer Service for Funding Agencies

- 1 Panelist, National Science Foundation, May 2017, March 2019, March 2020, May 2020, Feb

2021, April 2021.

2 External Reviewer, U.S. Army Research Office, May 2020.

3 External Reviewer, the Czech Science Foundation, Aug 2019.

#### Engineering School-level Committees

1 Fulton Engineering School Robotics and Autonomous Systems (RAS) graduate program committee. Sep 2018 - now;

#### Unit-level Committees

1 School of Computing, Informatics and Decision Systems Engineering, Computer Science undergraduate program committee. Aug 2017 - Aug 2019;

2 School of Computing, Informatics and Decision Systems Engineering, Computer Science graduate program admission committee. Aug 2016 - Aug 2017; Aug 2018 - Aug 2019;

3 School of Computing, Informatics and Decision Systems Engineering, AI track faculty search committee, Member 2021; AI for Security new faculty search committee, Member 2020; AI and NLP new faculty search committee, Member 2018; NLP new faculty search committee, Member 2017; Deep learning new faculty search committee, Member 2017; AI new faculty search committee, Member 2016.

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**RESEARCH SUPPORT**External Funding

Principal Investigator, “RI: Small: SM-An Active Approach for Data Engineering to Improve Vision-Language Tasks”

National Science Foundation, Robust Intelligence, Award #2132724

Co-PI: Chitta Baral

\$499,903.00 total (50% Recognition)

Apr 2022 to May 2025

Principal Investigator, “CAREER: Visual Recognition with Knowledge”

National Science Foundation, Robust Intelligence, Award #1750082

Senior Personnel: Chitta Baral

\$550,000 total (80% Recognition)

Aug 2018 to Aug 2023

Principal Investigator, “LESTAT: Discovering Schemas from Diverse Data”

DARPA KAIROS program

\$735,116 total (100% Recognition)

July 2019 to Dec 2023

Principal Investigator, IAM: Automated Traffic Incident Reconstruction, Indexing and Reporting

Institute of Automated Mobility, ACA

\$94,999 (100% Recognition)

March 2021 – Feb 2022

Principal Investigator, Embodied Visual Indoor Navigation with Goal Relational Graph

Samsung Electronics

\$200,000 (100% Recognition)

Dec 2020 - Dec 2021

Principal Investigator, “ARGOS vision”

National Science Foundation, I-Corps

\$50,000 total (100% Recognition)

Dec 2020 to Nov 2021

Principal Investigator, Amazon AWS Machine Learning Research Award

co-PI: Max Yi Ren

\$40,000 grant + \$30,000 AWS credits (50% Recognition)

July 2019 – July 2020

Principal Investigator, Phase III of the IAM Metrics Project: Safety Performance

Institute of Automated Mobility, ACA

co-PI: Hongbin Yu

\$107,941 (80% Recognition)

Jun 2021 – May 2022

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Principal Investigator, IAM: Automated Traffic Incident Reconstruction, Indexing and Reporting  
Institute of Automated Mobility, ACA  
\$94,999 (100% Recognition)  
Mar 2021 – Feb 2022

Principal Investigator, Phase II of the IAM Metrics Project: Safety Performance  
Institute of Automated Mobility, ACA  
co-PI: Yan Chen  
\$129,368 (50% Recognition)  
May 2020 – Dec 2020

Principal Investigator, “Compositional and Conditional Generative Adversarial Networks”, I  
Verisk AI research faculty award  
\$40,000 total (100% Recognition)  
Jan 2018 to Jan 2019

Principal Investigator, “Compositional and Conditional Generative Adversarial Networks”, II  
Verisk AI research faculty award  
\$50,000 total (100% Recognition)  
Jan 2019 to Jan 2020

co-Principal Investigator, “SaTC: CORE: Small: Decentralized Attribution and Secure Training of  
Generative Models”  
National Science Foundation, SaTC Program  
Co-PI: Ni Trieu, Max Yi Ren  
\$500,000 total (20% Recognition)  
Oct 2021 to Sep 2024

co-Principal Investigator, “Collaborative Research: CPS: Medium: Spatio-Temporal Logics for  
Analyzing and Querying”  
National Science Foundation, CPS Program  
PI: Georgios Fainekos  
\$799,936 total (30% Recognition)  
Jan 2021 to Dec 2023

co-Principal Investigator, “NRI: Socially graceful autonomous driving vehicles”  
National Science Foundation, National Robotics Initiative  
PI: Wenlong Zhang; Co-PI Max Yi Ren  
\$782,000 total (20% Recognition)  
Aug 2019 to Aug 2022

co-Principal Investigator, CCRI: Planning: Establishing A Hand-Gesture Research Platform for  
Behavior Biometrics and Cognitive Robotics (HGRP)  
National Science Foundation, CCRI program  
PI: Dijiang Huang  
\$100,000 total (40% Recognition)  
July 2019 to July 2020

co-Principal Investigator, IAM: Development and Demonstration of Safety Performance Assessment Metrics for ADS-Equipped Vehicle Behavior IAM

PI: Yan Chen

\$35,113 (50% Recognition)

Aug 2019 – Jan 2020

co-Principal Investigator, “RI: Small: A Cognitive Framework for Technical, Hard and Explainable Question Answering (THE-QA) with respect to Combined Textual and Visual Inputs”

National Science Foundation, Robust Intelligence, Award #1816039

PI: Chitta Baral

\$515,999 total (50% Recognition)

Aug 2018 to Aug 2021

co-Principal Investigator, “ Modeling Political Polarization Mobilization and Conflict De-Escalation through Gravity Models”

DOD-NAVY: Office of Naval Research (ONR), Award #N00014-18-1-2761

PI: Hasan Davulcu

\$1,135,088 total (33% Recognition)

Jan 2019 to Jan 2020

#### External Research Gifts

Principal Investigator, “Active Object Perceiver”

Adobe research university award/gift

\$45,000 total (100% Recognition)

Aug 2017 to Aug 2019

#### Internal Funding

Principal Investigator, “Determining Traffic Load and Location Through Machine Vision with On-device Image Processing”

The 2021 Fulton Schools of Engineering (FSE) Strategic Interest Seed Funding Program: Working Collaboratively to Meet Future Needs

co-PI: Deliang Fan; Co-PI: Wenwen Li

\$25,000 total (33% Recognition)

Aug 2021 to Aug 2022

Principal Investigator, “Camera-first non-invasive sports performance monitoring”

ASU Global Sports Institute Seed Fund

\$20,000 total (100% Recognition)

June 2017 to Aug 2018

Principal Investigator, “EM education in CS and Robotics courses”

ASU KEEN EM education seed grants

\$24,000 total (100% Recognition)

Jan 2017 to Aug 2018

co-Principal Investigator, “Socially Graceful Autonomous Driving”



Yezhou Yang

CURRICULUM VITAE

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ASU CASCADE seed grant

PI: Wenlong Zhang; Co-PI Max Yi Ren

\$10,000 total (33% Recognition)

May 2018 to May 2019

Last updated: October 3, 2021