TEJAS GOKHALE

699 S Mill Ave, Tempe AZ tgokhale@asu.edu tejas-gokhale.github.io Google Scholar

RESEARCH INTERESTS

I work on computer vision, machine learning, and natural language processing – very often at the wonderful intersection of the three disciplines. My domain expertise lies in *semantic vision*, i.e. building computer vision algorithms that assign "meaning" to what cameras see, with special focus on analyzing and improving the robustness and generalizability of such algorithms.

EDUCATION

Ph.D.	Computer Engineering	*Advisors: Yezhou Yang, Chitta Baral*	2018–2023
M.S.	Electrical and Computer Engineering	*Advisor: Aswin Sankaranarayanan*	2016–2017
B.E.(Honors)	Electronics and Instrumentation		2011–2015

PUBLICATIONS

Conference Proceedings

Semantically Distributed Robust Optimization for Vision-and-Language Inference
T. Gokhale, A. Chaudhary, P. Banerjee, C. Baral, Y. Yang
https://arxiv.org/abs/2110.07165 ACL Findings 2022

Generalized but not Robust? Comparing the Effects of Data Modification Methods on Out-of-Domain Generalization and Adversarial Robustness
T. Gokhale, S. Mishra, M. Luo, B. Sachdeva, C. Baral
https://arxiv.org/abs/2203.07653 ACL Findings 2022

Unsupervised Natural Language Inference Using PHL Triplet Generation
N. Varshney, P. Banerjee, **T. Gokhale**, C. Baral
https://arxiv.org/abs/2110.08438 ACL Findings 2022

To Find Waldo You Need Contextual Cues: Debiasing Who's Waldo
Y. Luo, P. Banerjee, **T. Gokhale**, Y. Yang, C. Baral
https://arxiv.org/abs/2203.16682 ACL Findings 2022

Improving Biomedical Information Retrieval with Neural Retrievers
M. Luo, A. Mitra, **T. Gokhale**, C. Baral
https://arxiv.org/abs/2201.07745 AAAI 2022

Weakly Supervised Relative Spatial Reasoning for Visual Question Answering
P. Banerjee, **T. Gokhale**, Y. Yang, C. Baral
https://arxiv.org/abs/2109.01934 ICCV 2021

WeaQA: Weak Supervision via Captions for Visual Question Answering
P. Banerjee, **T. Gokhale**, Y. Yang, C. Baral
https://arxiv.org/abs/2012.02356 ACL Findings 2021

Self-Supervised Test-Time Learning for Reading Comprehension
P. Banerjee, **T. Gokhale**, C. Baral
https://arxiv.org/abs/2103.11263 NAACL 2021

Attribute-Guided Adversarial Training for Robustness to Natural Perturbations
T. Gokhale, R. Anirudh, B. Kailkhura, J. Thiagarajan, C. Baral, Y. Yang
https://arxiv.org/abs/2012.01806 AAAI 2021

Mutant: A Training Paradigm for Out-of-Distribution Generalization in Visual Question Answering
T. Gokhale, P. Banerjee, C. Baral, Y. Yang
https://arxiv.org/abs/2009.08566 EMNLP 2021

Video2commonsense: Generating commonsense descriptions to enrich video captioning
Z. Fang, **T. Gokhale**, P. Banerjee, C. Baral, Y. Yang
https://arxiv.org/abs/2003.05162 EMNLP 2021

VQA-LOL: Visual question answering under the lens of logic
T. Gokhale, P. Banerjee, C. Baral, Y. Yang
https://arxiv.org/abs/2002.08325 ECCV 2020

⊙ Workshop Papers / Pre-Prints

Halluci-Net: Scene Completion by Exploiting Object Co-occurrence Relationships
K. Kulkarni, **T. Gokhale**, R. Singh, P. Turaga, A. Sankaranarayanan
https://arxiv.org/abs/2004.08614 AI for Content Creation @ CVPR 2021

Cooking With Blocks: A Recipe for Visual Reasoning on Image-Pairs
T. Gokhale, S. Sampat, Z. Fang, Y. Yang, C. Baral
Long version: https://arxiv.org/abs/1905.12042 Vision Meets Cognition @ CVPR 2019

⊙ Proposal Writing

Decentralized Authorship Attribution
PI: Chitta Baral *Submitted to IARPA, 2022*
(Conceptualized and wrote 1 of 3 research plans)

An Active Approach for Data Engineering to Improve Vision-Language Tasks
PI: Yezhou Yang, Co-PI: Chitta Baral *Accepted and Funded by NSF, 2021*
(Conceptualized and wrote 2 of 3 research plans)

RESEARCH EXPERIENCE

Microsoft Research May 2021 - Aug 2021
Research Intern *(Mentor: Hamid Palangi)*

Lawrence Livermore National Labs, Livermore CA May 2021 - Aug 2021
Research Scholar *(Mentor: Rushil Anirudh)*

Lawrence Livermore National Labs, Livermore CA May 2020 - Aug 2020
Research Scholar *(Mentor: Rushil Anirudh)*

Snap Inc., Seattle May 2018 - Aug 2018
Research Intern *(Mentors: Guru Krishnan & Shree Nayar)*

Carnegie Mellon University Jan 2017 - May 2018
Graduate Student Researcher *(Advisor: Aswin Sankaranarayanan)*

TEACHING

Teaching Associate, Arizona State University

CSE310: Data Structures & Algorithms, Spring 2020, ASU
CSE408: Multimedia Information Systems, Spring 2019, ASU
CSE110: Introduction to Programming, Fall 2018, ASU

Course Development CSE591: Frontier Topics in Vision & Language [YouTube] [website] Spring 2021
I initiated the development of this class as a series of (weekly) invited seminars, followed by paper reading, discussion, and brainstorming in the classroom.

Student Instructor CTE: Advanced Image Processing, Spring 2015, BITS Pilani

MENTORING

Ethan Wisdom, Ph.D. CS [current]
Maitreya Patel, M.S. CS [current]
Huiliang Shao, M.S. CE 2022 [current]
Abhishek Chaudhary, M.S. CS 2021 [thesis]

Capstone Mentor, mentored five B.S. CS students in projects on vision & language AY 2019-20
Project Mentor, CSE598 - Perception in Robotics, ASU Spring 2022
Project Mentor, CSE576 - Natural Language Processing, ASU Fall 2018

INVITED TALKS

Mar'22, *(Guest Lecture)* "Introduction to Generalization in Semantic Vision" ASU CSE 598
Sep'21, *(Invited)* "Robust Visual Understanding", ASU ML Club
Aug'19, "Vision Beyond Pixels", IJCAI Doctoral Consortium, IJCAI 2019, Macao
Jul'19, "Reasoning about Objects and Actions via Block-Play", Telluride 2019
Apr'18, *(Invited)* "Deep Learning Methods in Imaging and Computer Vision", BITS Goa

SERVICE / LEADERSHIP

Reviewer: NeurIPS (2022), ICLR (2022), ECCV (2022), AAAI (2021-22), *ACL/Rolling Review (2021-22), WACV (2022), IROS (2022), ICRA (2019-22), IEEE RA-L (2020), Springer MVAP (2020)
Organizer, O-DRUM: Workshop on Open-Domain Retrieval under Multi-Modal Settings, [Website], CVPR '22
Organizer, 2021 Frontiers of V&L Seminar Series, [Website], ASU
Founder, Summer Vision Reading Group, [Website], multi-university initiative
Volunteer, 2019 Southwest Robotics Symposium, Tempe AZ
Volunteer, International Conference on Machine Learning 2020, Virtual
Advisor, ASU Machine Learning Club, ASU
Mentor, Graduate Student Mentorship Program, ASU
Student Mentor, Peer Mentorship Program BITS Pilani

AWARDS

CVPR 2022 Doctoral Consortium CVPR 2022
ICLR Highlighted Reviewer ICLR 2022
SCAI Doctoral Fellowship (ASU), Spring 2022, Spring 2021, Spring 2020
Engineering Graduate Fellowship, (ASU Engineering), Spring 2020

Graduate College Travel Award, (ASU), for ECCV 2022, ICCV 2021, EMNLP 2020, ECCV 2020
IJCAI 2019 Doctoral Consortium, IJCAI 2019
Inducted, IEEE Eta Kappa Nu, Sigma Chapter (CMU), Jan 2017
National Talent Scholarship (Govt. of India), 2007-2015

REFERENCES

Yezhou Yang	Assistant Professor	Arizona State University,	yz.yang@asu.edu
Chitta Baral	Professor	Arizona State University,	chitta@asu.edu
Rushil Anirudh	Research Scientist	Lawrence Livermore National Laboratory	anirudh1@llnl.gov