TEJAS GOKHALE

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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 Engineering,		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

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

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

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/MENTORING

Teaching Associate, ASU,
CSE310 (Data Struct. & Algorithms), CSE408 (Multimedia Info Systems), CSE110 (Intro to Programming)
Masters Thesis Mentor (at ASU),

Abhishek Chaudhary, (AY 2020-21), Huiliang Shao, (AY 2021-22), Maitreya Patel, (AY 2022-23)
Capstone Mentor, mentored 5 BS students in projects on vision & language — AY 2019-20
Project Mentor, CSE576 - Natural Language Processing, ASU — Fall 2018
Project Mentor, CSE598 - Perception in Robotics, ASU — Spring 2022
Instructor, CTE: Advanced Image Processing, BITS Pilani Goa Campus — Spring 2015

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 2022
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, 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