GOWTHAMI SOMEPALLI

web: https://somepago.github.io   *email:* gowthami@umd.edu

RESEARCH INTERESTS

My research is focused on understanding the failure modes of deep learning models, both discriminative and generative. Lately, my efforts have primarily centered on understanding multimodal generative models, particularly Text-to-Image Diffusion models and Video Language Models.

EDUCATION

University of Maryland, College Park   Aug. 2019 - Dec 2024
Ph.D. in Computer Science (4.0/4.0)
Ann Wylie Doctoral Fellowship, Kulkarni Fellowship, Amazon Fellowship
Advisor: Tom Goldstein
Dissertation: Understanding Failure Modes of Deep Learning Models

Indian Institute of Technology, Madras   Aug. 2006 - Dec. 2011
Bachelors + Masters in Mechanical Engineering
Advisor: Raghu Prakash

SELECTED PUBLICATIONS

Visit my Google Scholar T2ezBDsAAAAJ for complete list

- Improved Contextual Video Captioning via Instruction Tuning   NeurIPS, 2024
  G. Somepalli, A. Chowdhury, J. Geiping, R. Basri, T. Goldstein, D. Jacobs
- Measuring Style Similarity in Diffusion Models   ECCV, 2024
  G. Somepalli, A. Gupta, K. Gupta, M. Goldblum, J. Geiping, A. Shrivastava, T. Goldstein
- CinePile: A Long Video Question Answering Dataset and Benchmark   web, 2024
  R. Rawal, K. Saifullah, R. Basri, D. Jacobs, T. Goldstein*, **G. Somepalli***   *Best Paper, SynCV CVPR 2024*
- Understanding and Mitigating Copying in Diffusion Models   NeurIPS, 2023
  G. Somepalli, V. Singla, M. Goldblum, J. Geiping, T. Goldstein
- Battle of the backbones: A large-scale comparison of pretrained models across CV tasks   NeurIPS, 2023
  M. Goldblum, H. Souri, R. Ni, M. Shu, V. Prabhu, **G. Somepalli**, P. Chattopadhyay, M. Ibrahim, A. Bardes,
  J. Hoffman, R. Chellappa, AG Wilson, T Goldstein
- Diffusion Art or Digital Forgery? Investigating Data Replication in Diffusion Models   CVPR, 2023
  G. Somepalli, V. Singla, M. Goldblum, J. Geiping, T. Goldstein   *TechCrunch coverage - link*
- How much Data is Augmentation Worth?   web, ICLR 2023
  J. Geiping, **G. Somepalli**, R. Shwartz-Ziv, A. G. Wilson, T. Goldstein, M. Goldblum
- Investigating Reproducibility and Double Descent from the DB Perspective   web, CVPR (Oral) 2022
  G. Somepalli, L. Fowl, A. Bansal, P. Yeh-Chiang, Y. Dar, R. Baraniuk, M.GoldBlum, T. Goldstein
- SAINT: Improved NNs for Tabular Data via Row Attention and Contrastive PT   web, NeurIPS TRLW 2022
  G. Somepalli, M. Goldblum, A. Schwarzschild, C.B. Bruss, T. Goldstein   *400+ stars on Github*
- PatchGame: Learning to Signal Mid-level Patches in Referential Games   web, NeurIPS 2021
  K. Gupta, **G. Somepalli**, Anubhav, V. Jayasundara, M. Zwicker, A. Shrivastava
- Unsupervised Anomaly Detection with Adversarial Mirrored AutoEncoders   web, UAI (Oral) 2021
  G. Somepalli, Y. Wu, Y. Balaji, B. Vizumuri, S. Feizi
- FUGUE : Characterizing functional genes across human tissues   web, PLOS CompBio 2021
  G. Somepalli, S. Sahoo, S. Hannenhalli
- Adversarial Training against Poisons and Backdoors   web, 2021
  J. Geiping, L. Fowl, **G. Somepalli**, M. Goldblum, M. Moeller, T. Goldstein

WORK EXPERIENCE

Adobe Firefly   2025 – Present
Research Scientist   *San Francisco, CA*
- Building Adobe Firefly image generative models.

Meta AI   2023 – 2023
Research Internship   *New York, NY*
- Long video understanding with LLMs. Curated instruction data and trained a video LLM from scratch with interleaved vision and text tokens.

[Amazon AWS AI](#)
Summer Internship

2022 – 2022
Pasadena, CA

- Understanding and reducing regression in deep learning models via model soups.

[Flipkart](#)
Business Manager - Sell side

2017 - 2018
Bengaluru, India

- Led the demand planning and forecasting for the TV category; revamped the legacy data collection and modeling techniques. Reduced the overstocking by 15% and reduced the lost potential sales due to out-of-stock issues by 10% within my 6 months of joining.
- Won Annual **Business Excellence Award** for the most business growth via product innovation.

[Poolka Technologies](#)
Cofounder

2015-2017
Bengaluru, India

Poolka provides scalable visual recognition APIs to developers & businesses.

- Built [Fairi](#), a fashion assistant chatbot that provides fashion recommendations based on social media trends and users' existing wardrobe. Iterated & improved the product with 2000+ beta users.
- Selected for **Microsoft Bizspark** and **IBM Global Entrepreneur** Program. (>$20000 cloud credits per year)

INVITED TALKS

- Measuring Style Similarity in Diffusion Models - ML Collective (Jul'24)
- CinePile: A Long Video QA Dataset and Benchmark - CVPR Syn4CV, SyntaGen workshops (Jun'24)
- Mitigating Memorization in Diffusion Models - Cohere (May'24), NeurIPS Diffusion workshop (Dec'23), WACV tutorial (Jan'24)
- Understanding Data Replication in Diffusion Models - Google Deepmind (Aug'23), TikTok US (May'23), ML Collective (Mar'23), ICML GenLaw (Jul'23)
- Investigating Reproducibility from the DB Perspective - WiML workshop @NeurIPS (Nov'22), Google Research India (Apr'22), TOPML Workshop (Mar'22)
- SAINT: Transformers for tabular data - G-Research, UK (Nov'22)
- Transformers for Vision - a mini survey - ML Seminar Series, UMD (Oct'21)
- Learnings from running a B2B tech startup in India - Headstart, Bengaluru (2017)

MEDIA COVERAGE

- [1littlecoder Podcast](#) Multimodality and CinePile — 2024
- [MarkTechPost](#) UMD Researchers proposed a framework for extracting style from images. — 2024
- [AiToolHouse](#) A Novel Dataset and Benchmark for Long-Form Video Understanding — 2024
- [Ars Technica](#) Stable Diffusion copyright lawsuits could be a legal earthquake for AI — 2023
- [TechCrunch](#) - Image-generating AI can copy and paste from training data, raising IP concerns — 2022

MISCELLANEOUS

- Reviewer - NeurIPS, ICLR, CVPR, ECCV — 2022-Present
- Organizer - High-dimensional learning workshop @ ICML'24, Responsible GenAI @ ICCV'24. — 2024-Present
- **Founder of [@MLSummaries](#)** twitter and medium accounts. 4000+ followers. — 2021-Present
- Initiated student-led Machine Learning Seminar Series, UMD. — 2021-Present
- **Mentor**: Tech + Research program in Technica. — 2020, 2023
- Master's research Scholarship by Ministry of Human Resources and Development, Govt. of India. — May 2010
- National Talent Search Exam Scholarship by Govt. of India. — 2005-11
- Prathibha Award by Andhra Pradesh State Govt. — 2003