

Shobhita Sundaram

Website: shobhitasundaram.com
Email: shobhita@mit.edu
LinkedIn: [linkedin.com/in/shobsund](https://www.linkedin.com/in/shobsund)
GitHub: github.com/ssundaram21

EDUCATION

Massachusetts Institute of Technology (MIT) Ph.D. Computer Science Advisor: Phillip Isola	Cambridge, MA 2022–2027
Massachusetts Institute of Technology (MIT) S.B. Computer Science, S.B. Mathematics Advisors: Pawan Sinha, Xavier Boix, Tomaso Poggio	Cambridge, MA 2018–2022

PUBLICATIONS

** indicates equal contribution*

- When Does Perceptual Alignment Benefit Vision Representations?
S. Sundaram*, S. Fu*, L. Muttenthaler, N. Tamir, L. Chai, S. Kornblith, T. Darrell, P. Isola.
Advances in Neural Information Processing Systems (NeurIPS), 2024
- DreamSim: Learning New Dimensions of Human Visual Similarity using Synthetic Data.
S. Fu*, N. Tamir*, **S. Sundaram***, L. Chai, R. Zhang, T. Dekel, P. Isola.
Advances in Neural Information Processing Systems (NeurIPS), 2023 (**spotlight**)
- Recurrent Connections Facilitate Symmetry Perception in Deep Networks.
S. Sundaram*, D. Sinha*, M. Groth, T. Sasaki, X. Boix.
Scientific Reports, vol. 12, no. 1, 2022
Workshop on Generalization Beyond the Training Distribution in Brains and Machines, ICLR 2021
- GAN-Based Data Augmentation for Chest X-ray Classification.
S. Sundaram* and N. Hulkund*.
Workshop on Applied Data Science for Healthcare, KDD 2021
- Do Neural Networks for Segmentation Understand Insideness?
K. Villalobos*, V. Štih*, A. Ahmadinejad*, **S. Sundaram**, J. Dozier, A. Franci, F. Azevdo, T. Sasaki, X. Boix.
Neural Computation, vol. 33, no. 9, 2021

EXPERIENCE

Google Research <i>Student Researcher</i>	Cambridge, MA December 2023 - March 2024
<ul style="list-style-type: none">– Researched synthetic data generation with diffusion models for personalizing vision backbones.– <i>Mentors:</i> Yonglong Tian, Dilip Krishnan	
Google DeepMind <i>Research Engineering Intern</i>	London, UK June - August 2022
<ul style="list-style-type: none">– Researched novel data selection strategies for pre-training large language models.– <i>Mentors:</i> Sebastian Borgeaud, Laurent Sifre, Jordan Hoffman, Arthur Mensch	
Center for Brains, Minds, and Machines, MIT <i>Undergraduate Researcher</i>	Cambridge, MA September 2019 - May 2022
<ul style="list-style-type: none">– Investigated recurrent vision models for learning generalizable representations of visual features with long-range spatial dependencies.	

- Studied applications in segmenting closed curves and symmetry detection.
- *Mentors:* Xavier Boix, Pawan Sinha, Tomaso Poggio

The D. E. Shaw Group

New York, NY

Quantitative Research Intern

June - August 2021

- Developed RL tools for portfolio management, outperforming baselines derived from optimal control theory.
- *Mentor:* Konstantin Turitsyn

Apple

Cupertino, CA

Machine Learning Intern

June - August 2020

- Built machine learning models to forecast battery drain from iPhone time series usage data, enabling intelligent power management.
- Deployed an end-to-end machine learning pipeline on-device for power optimization, aiming to release to consumer iPhones; selected from 15 interns to present to SVP of Software Engineering based on impact.

Two Sigma Investments

Houston, TX

Software Engineering Intern

May - August 2019

- Developed a RESTful Flask service and UI to create and maintain collections of instruments for trading.
- Tool is now used by 4 teams to track over 20,000 instruments with unique trading characteristics.

Digital Humanities Lab, MIT

Cambridge, MA

Undergraduate Researcher

September - December 2018

- Collaborated on open-source project: “Computational Reading of Gender in Novels, 1770-1992”.
- Designed and released Python tools to uncover gender biases in 4,200 novels.

AWARDS

NSF Graduate Research Fellowship	2022 - 2025
HDTV Grand Alliance Fellowship	2022 - 2023
MIT Undergraduate Research and Innovation Scholar	2020
MIT Burchard Scholar	2020

SERVICE & LEADERSHIP

Organizer: ECCV Tutorial on Efficient Text-to-Image Modeling	2024
Organizer: CVPR Workshop on Synthetic Data for Computer Vision	2024
Event Coordinator: MIT Graduate Women of EECS	2023
Mentor: MIT Graduate Application Assistant Program	2022 - Present
Associate Editor: MIT Science Policy Review	2020 - 2022
VP of Campus Relations: MIT Society of Women Engineers	2019 - 2021

INVITED TALKS

Evaluating Text-to-Image Models.

ECCV Efficient Text-to-Image Modeling Tutorial, September 2024

DreamSim: Learning New Dimensions of Human Visual Similarity using Synthetic Data.

Adobe, October 2023.

DreamSim: Learning New Dimensions of Human Visual Similarity using Synthetic Data.

Computer Vision Meetup, hosted by Vox51, July 2023.

SKILLS & INTERESTS

Skills: Python (PyTorch, Jax/Haiku, Tensorflow), Java, C/C++, CoreML, R.

Research Interests: Generative models, representation learning, computer vision, machine learning.