

Shobhita Sundaram

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EDUCATION

Massachusetts Institute of Technology (MIT) Cambridge, MA
Ph.D. Computer Science 2022–2027
Advisor: Phillip Isola

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

PUBLICATIONS

* indicates equal contribution

1. 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**)
2. 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
3. GAN-Based Data Augmentation for Chest X-ray Classification.
S. Sundaram* and N. Hulkund*.
Workshop on Applied Data Science for Healthcare, KDD 2021
4. Do Neural Networks for Segmentation Understand Insideness?
K. Villalobos*, V. Štih*, A. Ahmadinejad*, **S. Sundaram**, J. Dozier, A. Francl, F. Azevdo, T. Sasaki, X. Boix.
Neural Computation, vol. 33, no. 9, 2021

EXPERIENCE

Google Research Cambridge, MA
Student Researcher December 2023 - Present

- Researching synthetic data generation with diffusion models for fine-grained visual tasks, on the VisCam team.
- *Mentors:* Yonglong Tian, Dilip Krishnan

Google DeepMind London, UK
Research Engineering Intern June - August 2022

- Researched novel data selection strategies for pre-training large language models on the Deep Learning team.
- *Mentors:* Sebastian Borgeaud, Laurent Sifre, Jordan Hoffman, Arthur Mensch

Center for Brains, Minds, and Machines, MIT Cambridge, MA
Undergraduate Researcher September 2019 - May 2022

- 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 , recognizing students who “excel in the humanities”	2020

SERVICE & LEADERSHIP

Organizer: CVPR Workshop on Synthetic Data for Computer Vision	2024
Reviewer: ICCV Workshop on Representation Learning with Very Limited Images	2023
Reviewer: ICML Workshop on Challenges in Deployable Generative AI	2023
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

- 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 Voxel51, 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.