

Samir Yitzhak Gadre

sy@cs.columbia.edu | sagadre.github.io | [Google Scholar](#)

Research interests

Large-scale dataset construction, language and multimodal modeling.

Research summary

I study large-scale dataset construction and model training with an emphasis on understanding how model performance improves predictably with better datasets and bigger models. Nowadays, I investigate these interests in the context of multimodal models (e.g., [DataComp](#)) and language models (e.g., [OpenLM](#)).

Education

Sept 2020–Present **Columbia University**, Computer Science Ph.D. candidate, *GPA*: 4.0, *Advisor*: Professor Shuran Song (now @ Stanford)

Sept 2014–May 2018 **Brown University**, Computer Science Sc.B. w/ Honors, *CS GPA*: 3.94, *Advisors*: Professors George Konidaris & Stefanie Tellex
Thesis: Teaching Robots Using Mixed Reality. [\[pdf\]](#) [\[video\]](#)

Awards and grants

Mar 2022–Present **NSF graduate research fellow**

Sept 2020–Present **Presidential fellow**, Columbia University

May 2022 **CS departmental service award**, Columbia University

May 2018 **Sigma Xi honors society inductee**, Brown University

June 2016 **Undergraduate teaching and research award**, Brown University

Publications and technical reports

(* denotes equal contribution)

NeurIPS 2023 (oral) *DataComp: In search of the next generation of multimodal datasets*.
S. Y. Gadre*, G. Ilharco*, A. Fang*, J. Hayase, G. Smyrnis, T. Nguyen, R. Marten, M. Wortsman, D. Ghosh, J. Zhang, E. Orgad, R. Entezari, G. Daras, S. Pratt, V. Ramanujan, Y. Bitton, K. Marathe, S. Musmann, R. Vencu, M. Cherti, R. Krishna, P. W. Koh, O. Saukh, A. Ratner, S. Song, H. Hajishirzi, A. Farhadi, R. Beaumont, S. Oh, A. Dimakis, J. Jitsev, Y. Carmon, V. Shankar, L. Schmidt. [\[arXiv\]](#) [\[website\]](#) [\[code\]](#)

- NeurIPS 2023 *Multimodal C4: An open, billion-scale corpus of images interleaved with text.*
W. Zhu*, J. Hessel*, A. Awadalla, **S. Y. Gadre**, J. Dodge, A. Fang, Y. Yu, L. Schmidt, W. Y. Wang, Y. Choi. [\[arXiv\]](#) [\[code\]](#)
- NeurIPS 2023 *Objaverse-XL: A universe of 10M+ 3D objects.*
M. Deitke, R. Liu, M. Wallingford, H. Ngo, O. Michel, A. Kusupati, A. Fan, C. Laforte, V. Voleti, **S. Y. Gadre**, E. VanderBilt, A. Kembhavi, C. Vondrick, G. Gkioxari, K. Ehsani, L. Schmidt*, A. Farhadi*. [\[arXiv\]](#) [\[website\]](#) [\[code\]](#)
- NeurIPS 2023 *Improving multimodal datasets with image captioning.*
T. Nguyen, **S. Y. Gadre**, G. Ilharco, S. Oh, L. Schmidt. [\[arXiv\]](#)
- Tech Report 2023 *OpenFlamingo: An open-source framework for training large autoregressive vision-language models.*
A. Awadalla*, I. Gao*, J. Gardner, J. Hessel, Y. Hanafy, W. Zhu, K. Marathe, Y. Bitton, **S. Y. Gadre**, S. Sagawa, J. Jitsev, S. Kornblith, P. W. Koh, G. Ilharco, M. Wortsman, L. Schmidt. [\[arXiv\]](#) [\[code\]](#)
- Tech Report 2023 *OpenLM: a minimal but performative language modeling repository.*
S. Gururangan*, M. Wortsman*, **S. Y. Gadre**, A. Dave, M. Kilian, W. Shi, J. Mercat, G. Smyrnis, G. Ilharco, M. Jordan, R. Heckel, A. Dimakis, A. Farhadi, V. Shankar, L. Schmidt. [\[blog\]](#) [\[code\]](#)
- IROS 2023 *Structure From Action: Learning interactions for articulated object 3D structure discovery.*
N. Nie, **S. Y. Gadre**, K. Ehsani, S. Song. [\[arXiv\]](#) [\[website\]](#)
- CVPR 2023 *CoWs on Pasture: Baselines and benchmarks for language-driven zero-Shot object navigation.*
S. Y. Gadre, M. Wortsman, G. Ilharco, L. Schmidt, S. Song. [\[arXiv\]](#) [\[website\]](#) [\[code\]](#)
- NeurIPS 2022 *Patching open-vocabulary models by interpolating weights.*
G. Ilharco*, M. Wortsman*, **S. Y. Gadre***, S. Song, H. Hajishirzi, S. Kornblith, A. Farhadi, L. Schmidt. [\[arXiv\]](#) [\[website\]](#) [\[code\]](#)
- ICML 2022 *Model soups: Averaging weights of multiple fine-tuned models improves accuracy without increasing inference time.*
M. Wortsman, G. Ilharco, **S. Y. Gadre**, R. Roelofs, R. Gontijo-Lopes, A. S. Morcos, H. Namkoong, A. Farhadi, Y. Carmon*, S. Kornblith*, L. Schmidt*. [\[arXiv\]](#) [\[code\]](#)
- CVPR 2022 *Continuous scene representations for embodied AI.*
S. Y. Gadre, K. Ehsani, S. Song, R. Mottaghi. [\[arXiv\]](#) [\[website\]](#) [\[code\]](#)

- ICCV 2021 *Act the Part: Learning interaction strategies for articulated object part discovery.*
S. Y. Gadre, K. Ehsani, S. Song. [\[arXiv\]](#) [\[website\]](#)
- ICRA 2019 *End-user robot programming using mixed reality.*
S. Y. Gadre, E. Rosen, G. Chien, E. Phillips, S. Tellex, G. Konidaris.
[\[pdf\]](#) [\[video\]](#)

Research experience

- Sept 2020–Present **Columbia University**, Graduate researcher
Advisor: Professor Shuran Song
 Multimodal computer vision, natural language processing, and robotics.
- May–Aug 2022 **Allen Institute for Artificial Intelligence (AI2)**, Research intern
Advisors: Professor Roozbeh Mottaghi & Dr. Kiana Ehsani
 How can open-vocabulary models bridge the simulation to reality gap?
- June–Dec 2021 **Allen Institute for Artificial Intelligence (AI2)**, Research intern
Advisors: Professor Roozbeh Mottaghi & Dr. Kiana Ehsani
 Worked on learning scene representations to support a wide range of downstream embodied and vision tasks.
- Sept 2017–July 2018 **Brown University**, Robotics researcher & honors candidate
Advisors: Professors George Konidaris & Stefanie Tellex
 Investigated mixed reality interfaces to allow novice users to use holograms to program and teach robots.
- May–Aug 2016 **Brown University**, Computer Vision researcher
Advisor: Professor Benjamin Kimia
 Worked on visual odometry and camera pose estimation.

Industry experience

- Feb 2019–Aug 2020 **Microsoft HoloLens**, Software Engineer II
Manager: Dr. Harpreet Sawhney
 Worked on object detection and 6DoF object pose estimation for [Azure Object Anchors](#), which I helped to ship.

Teaching experience

- Jan–May 2021 **Robot Learning**, Columbia University, Graduate TA
- Sept–Dec 2020 **Computational Robotics**, Columbia University, Graduate TA
- Jan–May 2018 **Algorithms & Data Structures**, Brown University, TA
- Sept–Dec 2016 **Object Oriented Programming**, Brown University, TA

Invited Talks

- Oct 2023 **Data, intelligence, and computation in engineering lab @ NYU**
DataComp: In search of the next generation of multimodal datasets
- June 2023 **CVPR 2023 workshop on 3D scene understanding for vision, graphics, and robotics**
CoWs on Pasture: Baselines and benchmarks for language-driven zero-shot object navigation. [\[slides\]](#) [\[website\]](#)
- June 2022 **CVPR 2022 tutorial on vision-based robot learning.**
No Training? Towards Adapting Zero-Shot Models to Robotics Tasks
[\[slides\]](#) [\[website\]](#)
- Oct 2018 **University of Washington robotics colloquium**
Virtual and Mixed Reality Interfaces for Human-Robot Interaction.
[\[website\]](#)

Service

- July 2020–Present **Reviewer**, ECCV (2020), CVPR (2023), ICLR (2023), ICML (2022, 2023), IROS (2022), ICRA (2023), NeurIPS (2023)
- April–June 2022 **CVPR diversity, equity, and inclusion (DEI) committee**, Member
Reviewed CVPR registration fee waivers with an emphasis on improving CVPR’s accessibility to underrepresented groups.
- Sept–Dec 2021 **Columbia Pre-submission Application Review (PAR)**, Co-organizer
In charge of outreach efforts with a focus on recruiting underrepresented applicants.
- Sept 2020–May 2021 **Women in Science at Columbia (WiSC)**, Mentor
Met weekly with mentee to provide academic advise and help prepare for internship interviews.
- Sept–Dec 2020 **Columbia Pre-submission Application Review (PAR)**, Reader
Provided comments on statement of purpose materials submitted by students intending to apply for Ph.D. admission.
- June–Aug 2020 **Microsoft HoloLens Intern Co-Mentor**, Research mentor
Provided mentorship for a then incoming Princeton PhD student.
- Sept 2014–May 2016 **Outdoor Leadership and Environmental Education**, Mentor
Mentored 3-5 high school students per year on topics related to college admissions and internships. Taught science workshops and led field trips.

Other interests

In addition to research, I enjoy running, climbing mountains, and singing with my pop/rock choir: [Here to Sing](#).