Priya Goyal

Website: https://prigoyal.github.io/
Email: priy2201@gmail.com
Phone: +1-(512)-965-0682

EMPLOYMENT

Google Deepmind — Aug 2022 – Present, New York, NY
Staff Research Engineer — *Aug 2022 – Present*

– Leading efforts on building fundamental Multimodal technology aimed at enabling new capabilities with the most capable LLMs with focus on retrieval augmentation, tool use, complex vision tasks, evals, fairness and bias mitigation etc.

Facebook AI Research — Oct 2016 – Aug 2022, New York, NY
Staff Research Engineer — *Feb 2021 – Aug 2022*
Senior Research Engineer — *June 2018 – Feb 2021*
Research Engineer — *Oct 2016 – June 2018*

– Tech Lead of team focused on computer vision and responsible AI research and engineering.
– Extensive research experience in computer vision and deep learning – 16K plus citations, won best paper award at ICCV, led and released libraries (such as VISSL) and organized self-supervised learning challenge at ICCV workshop.
– Large scale vision modeling - built largest (to date) dense computer vision models (10billion parameters) and first author of foundational work – ImageNet in 1hour.

Facebook — Jan 2016 – Sept 2016
Software Engineer — *London, UK*

– Built deep learning models to improve the knowledge and entities graph of Facebook. Led the work on building neural networks from highly noisy data.

EDUCATION

Indian Institute of Technology (IIT) Kanpur — India, 2010 - 2015
Bachelor and Masters, Mathematics and Scientific Computing
M.Sc. Advisor: Prof. Harish Karnick
Thesis Title: Study of auto-encodings in the hidden units of deep neural networks.
GPA: 9.1/10 (Ranked 2 of 50 in graduating class).

RESEARCH INTERESTS

Multimodal learning: learning with many modalities including text, images.
Retrieval Augmentation: effective ways to address challenges in LLM, enable new capabilities etc.
Computer Vision / Machine Learning: learning with limited supervision (from uncurated data).
Socially Responsible AI: diagnosing and mitigating harms, model privacy and robustness.
Large scale vision models: pushing the limits in terms of data and model scale.

PUBLICATIONS

- *Vision Models Are More Robust And Fair When Pretrained On Uncurated Images Without Supervision* - Priya Goyal, Quentin Duval, Isaac Seessel, Mathilde Caron, Ishan Misra, Levent Sagun, Armand Joulin, Piotr Bojanowski, **arXiv 2022**
- *Fairness Indicators for Systematic Assessments of Visual Feature Extractors* - Priya Goyal, Adriana Romero Soriano, Caner Hazirbas, Levent Sagun, Nicolas Usunier, **arXiv, 2022 (under review)**
- *A Self-Supervised Descriptor for Image Copy Detection* - Ed Pizzi, Sreya Dutta Roy, Sugosh Nagavara Ravindra, Priya Goyal, Matthijs Douze, **CVPR 2022**
- *Fully Sharded Data Parallel: faster AI training with fewer GPUs* - Myle Ott, Sam Shleifer, Min Xu, Priya Goyal, Quentin Duval, Vittorio Caggiano, **Facebook Engineering blog, 2021**
- *VISSL: A library for state-of-the-art self-supervised learning from images* - Priya Goyal, Quentin Duval, Jeremy Reizenstein, Matthew Leavitt, Min Xu, Benjamin Lefaudeux, Mannat Singh, Vinicius Reis, Mathilde Caron, Piotr Bojanowski, Armand Joulin, Ishan Misra, **2021**
- *Self-supervised pretraining of visual features in the wild* - Priya Goyal, Mathilde Caron, Benjamin Lefaudeux, Min Xu, Pengchao Wang, Vivek Pai, Mannat Singh, Vitaliy Liptchinsky, Ishan Misra, Armand Joulin, Piotr Bojanowski, **arXiv 2021**
- *Unsupervised Learning of Visual Features by Contrasting Cluster Assignments* - Mathilde Caron, Ishan Misra, Julien Mairal, Priya Goyal, Piotr Bojanowski, Armand Joulin, **NeurIPS 2020**
- *Scaling and Benchmarking Self-Supervised Visual Representation Learning* - Priya Goyal, Dhruv Mahajan, Abhinav Gupta*, Ishan Misra*, **ICCV 2019**

- *The next 700 accelerated layers: From mathematical expressions of network computation graphs to accelerated gpu kernels, automatically* - Nicolas Vasilache, Oleksandr Zinenko, Theodoros Theodoridis, Priya Goyal, Zachary Devito, William S Moses, Sven Verdoolaege, Andrew Adams, Albert Cohen, ACM TACO 2019
- *Focal Loss for Dense Object Detection* - Tsung-Yi Lin, Priya Goyal, Ross Girshick, Kaiming He, Piotr Dollár, ICCV 2017 (***best student paper award***)
- *Accurate, Large Minibatch SGD: Training ImageNet in 1 Hour* - Priya Goyal, Piotr Dollár, Ross Girshick, Pieter Noordhuis, Lukasz Wesolowski, Aapo Kyrola, Andrew Tulloch, Yangqing Jia, Kaiming He, arXiv 2017

Tech Reports

- Peer-to-peer insult detection in online communities - Priya Goyal, Gaganpreet Singh Kalra, 2013

WORKSHOP CHALLENGE

Facebook AI Self-Supervision Learning Challenge ICCV, 2019
Extreme Computer Vision Workshop *Seoul, Korea*
Organized the first ever self-supervised challenge aimed at benchmarking representation learning on a variety of tasks. Wrote the transfer learning code and setup the challenge evaluation/submission server.

INVITED TALKS

- SEER, a self-supervised billion parameter computer vision model - Facebook AI Innovation Summit, 2021
- Scaling and Benchmarking Self-Supervised learning – Carnegie Mellon University, April 2019.
- Facebook North America Women in AI Leadership Summit, 2019 – 10K attendees.
- ImageNet-1k training in 1 hour – Caffe2 Meetup, Hawaii, CVPR 2017
- ImageNet in 1 hour – Deep Learning at Supercomputer Scale, NeurIPS 2017

MEDIA COVERAGE

- TechCrunch article on ImageNet in 1-Hour.
- CNBC article on SEER (training A.I. to "see").
- NVIDIA Developer on ImageNet on 1-Hour.
- Geekwire on ImageNet in 1-Hour.
- NVIDIA Developer on Self-supervised learning beating SOTA Computer vision models.
- WIRED article on AI Teaching Itself to See With Less Human Help.
- CNET on training computers to learn like humans do.
- ImageNet in 1-Hour at NeurIPS 2017 Supercomputing workshop.

AWARDS

- Best Student Paper Award, ICCV 2017.
- Facebook Grace Hopper Scholarship, 2014 and Google Global Scholarship, 2013.
- Academic Excellence Award 2011-12 and 2012-13 – given to top 5% of 850 students.
- Best Poster Award (amongst 60 posters) presented in SURGE, IIT Kanpur 2012.
- SURGE undergraduate research fellowship (2012), Indian Institute of Technology (IIT), Kanpur, India.
- National Talent Search Scholarship, 2008 – given to top 0.01% high school students all over India.

ACADEMIC SERVICE

Conference reviewer: Computer Vision and Pattern Recognition (2018 – present), International Conference on Computer Vision (2018 – present), European Conference on Computer Vision (2018 – present), International Conference on Learned Representations (2018 – present), International Conference on Machine Learning (2018 – present), Neural Information Processing Systems (2018 – present)

INTERNSHIPS

Facebook May-August 2015
Advisor: Kay Rottmann, Juan Miguel Pino, Language Technology Team *Menlo Park, CA, USA*
Built profanity detection classifier to detect profanity in the machine translations produced by Facebook. Built classifier for all the languages and automated the re-training of any classifier.

Goldman Sachs May–July 2014
Advisor: Andrei Bergners, Panna Pavangadkar, Developer Practices Group *New York, US*
Built software for making the firm approved SDLC build cloud dynamic and self-aware. The product analyzes nearly 3000 product builds across the firm on daily basis.

Yahoo! May–July 2013
Advisor: Bennet Manuel, Yahoo! Right Media Exchange *Bangalore, India*
Built visualization tool for tracking the usage of web bugs in online display ads to detect malicious vendors - helped increase the revenue of the company by curbing ban on minor defaulters.

Carnegie Mellon University Winter School Dec 2012–Jan 2013
Advisor: Prof. Carolyn P. Rosé, Department of Computer Science, CMU

Develop an interactive tutor moderated chat system for automated analysis and dynamic support for an online collaborative learning process. Proposed and implemented 2-pass architecture model for modelling the students' conversation and building an agent prototype capable of detecting distraction/ confusion among students and provide necessary support to ensure effective learning.

Summer Undergraduate Research Grant for Excellence May-July 2012

Advisor: Prof. Akash Anan, Department of Mathematics and Statistics *IIT Kanpur, India*

Developed efficient algorithms for projecting the point cloud on the projection surface. Automated the process of 3-D surface generation.