

Raphael Gontijo Lopes

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EDUCATION

Georgia Institute of Technology - Computer Science - GPA: 3.96 - Highest Honors Aug 2014 - May 2018
Google AI Residency - Google Brain - Led research projects in Machine Learning Jun 2018 - Dec 2020

SELECTED RESEARCH

* indicates first-author papers

No One Representation to Rule Them All *

arxiv.org/abs/2110.12899

- Large-scale study of how training methodology affects feature diversity ICLR 2022
- Divergent training methods leads to overlapping (not supersetting features)

Model Soups: Averaging Weights of Multiple Fine-tuned Models

arxiv.org/abs/2203.05482

- Uses insights from No One Representation to achieve SOTA on ImageNet ICML 2022
- Averaging finetuned runs improves ID/OOD without extra compute cost

Tradeoffs in Data Augmentation: An Empirical Study *

openreview.net/pdf?id=ZcKP

- Explains performance of augmentations based on two novel metrics [WuhG6wy](https://arxiv.org/abs/2106.00000)
- Augmentations help if they improve on the Affinity / Diversity pareto ICLR 2021

A Learned Representation of Scalable Vector Graphics *

arxiv.org/abs/1904.02632

- Generative model of fonts directly in vector format (SVG) ICCV 2019
- Fonts generated used by artist YACHT in new album ICLR 2019 DGS workshop

A Fourier Perspective on Model Robustness in Computer Vision

arxiv.org/abs/1906.08988

- Analysis of model sensitivities to various fourier noise corruptions NeurIPS 2019
- Fundamental differences between adversarial vs natural training ICML 2019 UDL Workshop

Improving Robustness Without Sacrificing Accuracy with Patch Gaussian *

arxiv.org/abs/1906.02611

- Novel, simple augmentation for simultaneous robustness and accuracy ICML 2019 UDL Workshop
- SOTA in Common Corruptions benchmark for single augmentations

Data-Free Knowledge Distillation of Deep Neural Networks *

arxiv.org/abs/1710.07535

- Transfer learning without access to the original data NIPS 2017 LLD Workshop

WORK EXPERIENCE

Google Brain - Research Scientist

Jun 2018 - Present

- Led research projects in Machine Learning, Computer Vision, Robustness, and Generative Models
- Authored numerous papers, submitted/accepted to major ML conferences, across various collaborations
- Worked with myriad infrastructure tools / codebases for large-scale machine learning training / analysis

GT Eye-Team - Undergraduate Research Assistant

Aug 2017 - May 2018

- Conducted research on causes and properties of accidental steganography by deep attention models

Microsoft - Software Engineer Intern - Azure Service Fabric

May 2017 - Aug 2017

- Implemented distributed Machine Learning systems using Service Fabric

GT Ubicomp Group - Undergraduate Research Assistant

Aug 2016 - May 2017

- Developed methods for Sign Language recognition and data-free neural network model compression

Google - Software Engineer Intern - Google Adwords

May 2016 - Aug 2016

- Created tools for advertisers to visualize statistics about their ads in Adwords at a glance

Google - Engineering Practicum Intern - Google Analytics

May 2015 - Aug 2015

- Automated the bookkeeping, and visualization of test coverage information of Google Analytics' jobs

PROJECTS

In Rotation

github.com/irapha/in_rotation

- Automated a "newly added" spotify playlist to never worry about manual curation again.

Buzzmobile

github.com/gtagency/buzzmobile

- Autonomous vehicle used as a parade float, built with ROS and python.
- Led team of 10+ in developing reactive control architecture, and an automated simulation framework.

LEADERSHIP / ACTIVITIES

Queer in AI - Founding Organizer / President

[\(queerintai.org\)](http://queerintai.org)

Jun 2018 - Present

The Agency (AI research club) - President / Internal Operations

[\(see talks\)](#)

Dec 2015 - Dec 2017