

# 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 - Present

## SELECTED RESEARCH

*\* indicates first-author papers*

### A Learned Representation of Scalable Vector Graphics \*

[arxiv.org/abs/1904.02632](https://arxiv.org/abs/1904.02632)

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

### Improving Robustness Without Sacrificing Accuracy with Patch Gaussian \*

[arxiv.org/abs/1906.02611](https://arxiv.org/abs/1906.02611)

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

### A Fourier Perspective on Model Robustness in Computer Vision

[arxiv.org/abs/1906.08988](https://arxiv.org/abs/1906.08988)

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

### Data-Free Knowledge Distillation of Deep Neural Networks \*

[arxiv.org/abs/1710.07535](https://arxiv.org/abs/1710.07535)

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

## WORK EXPERIENCE

### Google Brain - Google AI Resident

Jun 2018 - Present

- Led research projects in Machine Learning, Computer Vision, Robustness, and Generative Models
- Authored 3 papers, submitted/accepted to major ML conferences, across various collaborations

### 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
- Designed and created developer tools to make this task easy

### GT Ubicomp Group - Undergraduate Research Assistant

Aug 2016 - May 2017

- Developed Deep Learning models in TensorFlow for unsupervised pattern recognition of Sign Language
- Conducted self-led research on data-free neural network model compression using knowledge distillation

### 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](https://github.com/irapha/in_rotation)

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

### Buzzmobile

[github.com/gtagency/buzzmobile](https://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.

### InTube (TreeHacks 2017)

[github.com/irapha/search\\_within\\_videos](https://github.com/irapha/search_within_videos)

- A web app for searching within a youtube video, based on its visual and audio content.
- Created pipeline for efficiently retrieving youtube thumbnails and tagging them using deep ML models.

## LEADERSHIP / ACTIVITIES

### Queer in AI - Founding Organizer / President

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

Jun 2018 - Present

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

[\(see talks\)](#)

Dec 2015 - Dec 2017

### GT UROP - Undergraduate Research Ambassador / \$1.5k PURA grant winner

Aug 2017 - Dec 2017

### Undergraduate Council - Vice President

May 2016 - May 2017

### HackGT - Operations Organizer

Oct 2015 - May 2017

### Georgia Tech Sailing Club

Feb 2015 - Dec 2017

### Home Depot Deep Learning Competition - 2nd place / Organizer

Apr 2017, Nov 2017