

# Adham Elarabawy

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## Education

### University of California, Berkeley

Electrical Engineering & Computer Science | Bachelors of Science | Regents Scholar

## Experience

### Harvey AI Legal AI Startup

San Francisco, CA

#### Machine Learning Research Engineer

Jul 2023 - Present

- LLM Research + Engineering.
- Architecting model-based evaluation systems, complex multi-hop workflows, training & fine-tuning models, optimizing information retrieval pipelines, cleaning massive corpora of data, semantic chunking, etc.

### Scale AI AI Startup

San Francisco, CA

#### Machine Learning Research Engineer

May 2022 - Jul 2023

- Architected Scale AI Forge from inception.
- Lead ML Research for context-enriching diffusion models for e-commerce.
- Large Image Diffusion + Language Models Alignment Research.

### Google Information Technology

Mountain View, CA

#### Machine Learning Intern

Feb 2022 - May 2022

- Machine Learning on Search Team.

### UC Berkeley Research Lab Prof. Miki Lustig Lab

Berkeley, CA

#### Researcher

Aug 2021 - Apr 2023

- Developed novel multi-head deep learning models for reconstructing accelerated 3D MRI.
- Advised by Professor. Miki Lustig & Dr. Efrat Shimron.

### Formlabs 3D Printing Unicorn Company

Boston, MA

#### Software Engineering Intern

Sept 2020 - Dec 2021

- Developed real-time jerk-limited trajectory generation algorithm driven by material and laser optics constraints.
- Enhanced control systems and motion planning for Formlabs FLS/SLA 3D-printers.

## Publications & Projects

### 'Direct Inversion' Optimization-Free Text-Driven Real Image Editing with Diffusion Models

San Diego, CA

[First Author Preprint](#) | [Github Repo](#)

Aug 2022 - Jul 2023

- *Abridged Abstract:* Using widely-available generic pre-trained text-to-image diffusion models, we demonstrate the ability to modulate pose, scene, background, style, color, and even racial identity in an extremely flexible manner through a single target text detailing the desired edit.

### Open Quadruped Featured and Cited in Northwestern Research Paper (IEEE)

San Diego, CA

[Personal Robotic Dog Project](#)

May 2020 - Apr 2023

- Conceptualized and 3D-printed robot dog parts from scratch via FDM/SLS 3D-printing.
- Pioneered reinforcement learning on gait using IMU sensor for real-time balancing (Gazebo Physics Engine).
- Deployed object classification and tracking via YOLOv3 neural network trained on custom dataset.
- Implemented 3D environment localization and mapping using Visual ORB-SLAM + LIDAR.

### Machine Learning at Berkeley (MLab) Machine Learning Organization @ UC Berkeley

Berkeley, CA

#### Researcher + External Relations Officer

Feb 2020 - Mar 2022

- Conducted active machine learning research using autoencoders as an image compression technique in an effort to outperform existing compression methods with 3% improved signal-to-noise reconstruction performance.