

HARRIS BEG

harris@caltech.edu ◊ harrisbeg.com ◊ linkedin.com/in/~harris ◊ github.com/hbg

EDUCATION

California Institute of Technology (Caltech)

September 2020 - Present

B.S. Computer Science, Minor in Information & Data Science (4.1/4.0 GPA)

Donut Development Team, Hacktech Lead (Caltech's annual hackathon), Blacker House Historian, Muslim Student Association

RELEVANT COURSEWORK + SKILLS

Data Structures, Software Design, Decidability and Tractability, Linear Algebra, Introduction to Matlab and Mathematica

Programming Languages

Python, Java, C, C++, C#, JS, PHP,
Go, Julia, Matlab, Mathematica

Web Development

Django, Flask, React, Express,
Javascript, Node.js, Laravel

Machine Learning / Data

TensorFlow, PyTorch, OpenCV, PIL,
matplotlib, numpy, scipy

EXPERIENCE

Magnetic Resonance Systems Research Laboratory, Stanford University

June 2021 - August 2021

Summer Undergraduate Research Fellow

Stanford, CA

- Made use of a semi-supervised neural network to develop a consistency-based deep-learning approach to MRI reconstruction for images corrupted by motion artifacts. Utilized matplotlib, numpy, pandas, PyTorch, and wandb to experiment with different models to determine efficacy of my novel approach, coined Motion2Recon.
- Motion2Recon performed very well on MRI data with zero, light, and heavy motion, and consistently demonstrated significant improvement as compared to known reconstruction approaches for images with motion artifacts. Awarded a SURF fellowship from Caltech. Supervised by Prof. Shreyas Vasanawala and graduate students Arjun Desai, Beliz Gunel, and Batu Ozturkler.

Super Hack

June 2019 - June 2020

Lead Organizer

San Diego, CA

- Orchestrated San Diego's premier 12-hour high-school hackathon by securing over **\$5,000** in funding & **\$10,000** in prizes.
- Assembled and led a team of five to organize our hackathon (**400+ sign-ups**), lead marketing efforts, and managed event logistics. Featured in Del Mar Times, Rancho Santa Fe Review, and San Diego Reader. Acquired sponsors including GitHub, General Atomics, ResMed (provided venue for the event before COVID-19), San Diego Data Science Alliance, and BrainCorp.

Hibotics

August 2019 - June 2020

Software Engineering Intern

San Diego, CA

- Developed a websocket communication protocol to relay movement messages from a website to a ceiling traversal robot. Applications include intruder detection, bipedal tracking, and an educational robotic platform. **Patent-pending technology.**
- Generated sample ultrasonic data for Convolutional Neural Network using Python, matplotlib, and numpy for use in a primitive 3D space classifier. Created hand tracking software and utilized multiprocessing analysis to create low-latency video stream.

MySocialHub

November 2017 - December 2018

Frontend Engineer

Santa Monica, CA

- Made use of Laravel and its core components, including PHP, JS, HTML, SASS, and MySQL to develop a social platform for car communities, including websites with **100,000+** users. Used by YouTubers with over **4,000,000** subscribers.
- Utilized a Bitbucket repository and became well-versed in testing/feature-based Git workflows as well as JIRA and Atlassian.

PROJECTS

Grabify

November 2018 - Present

Used PHP, JS, HTML, and Materialize (a CSS framework) to aid in the construction of an IP-logging website, grabify.link; Grabify generates **700,000+** monthly users and has been featured on MTV's Catfish show three times.

- Grabify has over **190,000,000** total logs to date, **10,000,000+** user-generated links, and **800,000** registered users.
- Worked in a team of 3 to initiate new design phase of Grabify & suggest/implement new features, such as invisible Imgur links.

skinCAM

January 2018 - Present

- Employed a Tensorflow, Python, and Firebase-based backend + an application developed with Android Studio to identify skin diseases. **95%** accuracy over a custom training set of thousands of images (taken from DermNetNZ through a web scraper). "skinCAM" is currently on Play Store, and its technology was the subject of a **provisional patent (62/652,525)**.
- Won first prize at Greater San Diego Science & Engineering Fair (ISEF Affiliate) in Computer Science division, as well as over **\$2000** in awards {**IEEE Professional Society Award, Kaiser Permanente Grand Award, Sigma Xi Award, California State Science & Engineering Science Fair Qualifier**}.