# Sukrit Arora

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**EDUCATION**

**University of California, Berkeley**, May 2021
*M.S., Electrical Engineering and Computer Science [Advisor: Michael Lustig]*
*B.S., Electrical Engineering and Computer Science (May 2020)*

**RELEVANT COURSES**

Statistical Learning Theory*, Statistical Signal Processing*, Low Dimensional Models for High Dimensional Data*, Machine Learning, Digital Image Processing, Digital Signal Processing, Probability Theory, Algorithms, Information Theory, Embedded Systems, Digital Design (FPGA)

*in progress

**LANGUAGES**

Python, Matlab, C, Verilog, RISC-V, Java, Swift (iOS), SQL

**WORK EXPERIENCE**

**Computational Imaging Lab [Prof. Lustig],** *Graduate Researcher*     May 2018 - Present
- Engineered a deep decoder generative network for image denoising and subsampled magnetic resonance (MR) image reconstruction. [Abstract][Code]
- Formulated a volumetric MR image stitching solution to minimize overlap artifacts

**UC Berkeley EECS Department,** *Undergraduate Student Instructor*     Jan 2018 - Dec 2019
- Devices and Systems & Computer Architecture: Led discussions and labs of 50 students on the fundamentals of circuit design, control and signals theory, and computer architecture
- Optimization [Prof. Bayen] & Signals [Prof. Ayazifar]: Created new, application-based labs and homework related to stock price tracking, communication systems, and image compression

**Apple Inc.,** *Product Security Intern*     May 2017 - Aug 2017
- Created a Command Line Interface to perform complex queries on a distributed graph database (under NDA)
- Designed and implemented a server automation project (under NDA)

**PROJECTS**

**Computational Imaging**
| [Colorizing the Prokudin-Gorskii Photo Collection](#) | [Image Straightening, Sharpening, Hybrids, and Blending](#)
| [Face Morphing](#) | [MNIST Fashion Classification and Facade Segmentation (CNNs)](#)
| [Image Warping and (Auto)-Mosaicing](#) | [Light Field Camera Processing, Seam Carving, HDR Imaging](#)

**RISC-V CPU and Audio Synthesizer on FPGA [Report]**
Made a 60 MHz, 3-stage pipelined, RISC-V CPU with user I/O and an NCO audio synthesizer.

**Localization and Unpredictable Surveillance with Drones [Demo Video]**
Using IR Reflectors and a system of Motion Capture cameras, localized and controlled a drone to randomly visit waypoints while avoiding an adversary turtlebot

**Image Object Removal [Presentation]**
Combined **Mask R-CNN** and **Generative Image Inpainting (GAN)** architectures in order to inpaint objects in a scene

**Radio Modem and Image Compression Algorithm [Presentation]**
Created our own variant of **JPEG image compression** and an **AFSK modem** to transmit images across a room. Placed third in the competition.

**Self-Inverting Pendulum [Demo Video]**
Created a self-inverting pendulum by combining a **LQR Controller** with a **Leunberger Observer** for state estimation and Bang-Bang control for swing-up.

**Random Music Generation [Report]**
Generated new music by training on existing music of different genres using a **Markov Chain**