Sukrit Arora

Machine Learning Engineer

sukrit.arora@berkeley.edu • sukritarora.com
LinkedIn • Ann Arbor, MI • US Citizen

Highly skilled and dynamic engineer with experience leveraging computer vision and machine learning expertise to build state-of-the-art solutions. Proficient at developing and deploying next-generation deep learning generative vision models and implementing complex algorithms. Exceptional in translating technical concepts into deployable solutions with strong theoretical and technical knowledge to drive innovation within the company. Acute at reading research papers, developing prototypes, and leveraging data science techniques to interpret data patterns. Excels at working in multi-functional teams, ensuring the completion of projects within the targeted timeline. Resourceful in troubleshooting and effectively resolving issues, improving current application methodologies. Adept in optimizing deployed deep learning models to meet business requirements and company objectives. Inspiring peer mentor, experienced in training workforces and cultivating a culture of curiosity and continuous learning.

Technical Proficiencies

Languages:	Python, C++, C, Verilog, Matlab, Java, RISC-V, R, SQL, Swift (iOS)
Packages:	Tensorflow 1.x/2.x, PyTorch, Open-CV, Scikit-Learn, Pandas, NumPy, SciPy
Domains:	Deep Learning, Computer Vision, Machine Learning, Computational Photography, Image Processing, Data Science, Computational Geometry, Optimization, Signal Processing

Career Experience

KLA, Ann Arbor, MI   **Aug 2021 – Present**
ML/AI Algorithm Engineer

- Develop an innovative unsupervised image segmentation technique using generative AI modeling for anomaly detection in SEM images, resulting in a more efficient production architecture that expedites time to deployed model by several hours without compromising segmentation quality and without human annotation.

- Create a reverse image search prototype utilizing deep metric learning methods, facilitating the discovery of similar defect types across multiple data sources to enable the augmentation of training data, leading to improved contribution performance of classification models by 60%.

- Adopt a novel approach to an existing network visualization algorithm to offer transparency and insights into the reasoning behind model outputs, leading to enhanced field debugging capabilities and fostering customer trust in the model.

- Analyze and optimize the performance of deployed models in real-world scenarios for government agencies and some of the largest semiconductor manufacturing companies. Implement various fixes, including hyperparameter and pre-processing changes, leading to improved model generalizability and performance.

- Oversee the adoption of improved MLOps practices for DL Research, specifically through migration of development environment to Docker and the evaluation of third party experiment management tools as a solution for research use cases.

- Mentor two summer interns, providing project ideas, research direction, and technical support; instructing a comprehensive course on DL applications at KLA, equipping students with practical knowledge and skills.

- Honored with an Engineer of the Month and a Team of the Month award for exceptional contributions and outstanding work.

UC Berkeley Electrical Engineering & Computer Sciences, Berkeley, CA   **May 2018 – May 2021**
Student Researcher - [Thesis] - Advised by Michael (Miki) Lustig

- Developed an advanced image denoising and subsampled 3D magnetic resonance (MR) image reconstruction system using a deep decoder generative network. Work cited by 16. [Conference Abstract] [Code]

- Devised an innovative technique for minimizing overlapping artifacts in volumetric MR image stitching.

University of California, Berkeley, CA   **Jan 2018 – Dec 2019**
Undergraduate Student Instructor

- Facilitated interactive discussions and supervised laboratory sessions for a class of 50 students, covering essential aspects of circuit design, control and signals theory, and computer architecture.

- Developed innovative and practical laboratory exercises and assignments focused on real-world applications, such as stock price tracking, communication systems, and image compression, for courses on Optimization and Signals Theory.

Apple, Cupertino, CA   **May 2017 – Aug 2017**
Product Security SWE Intern

- Developed a Command Line Interface to execute intricate queries on a distributed graph database to help analyze the relationship between different cybersecurity entities.

- Designed and implemented a server automation project to act as a honeypot and sandbox

Projects

Computational Photography Projects, Jan 2020 - May 2020

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

Facial Recognition Using Learned Low Dimensional Image Representations, [Paper], Dec 2020

Improved facial recognition dictionary-based classification algorithm performance by leveraging various low-dimensional image representations, including Decimation, Haar Wavelet, PCA, and Convolutional Autoencoder.

Image Object Removal, [Presentation], May 2019

Implemented a end-to-end integration of Mask R-CNN and Generative Image Inpainting (GAN) architectures to seamlessly paint objects within a given scene.

Education

Master of Science in Electrical Engineering and Computer Science
University of California, Berkeley, May 2021

Bachelor of Science in Electrical Engineering and Computer Science
University of California, Berkeley, May 2020