Roshan Prabhakar

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https://github.com/roshanprabhakar

High Student with confirmed analytical, collaborative, and leadership skills. I Intend to leverage my abilities to contribute to a project in your lab. Confirmable by my peers, I can be relied upon to help you achieve your lab goals.

Experience

STEM to SHTEM 2019, *Stanford* U. - Project Intern
Summer 2019
Developing an application for the general compression of facial-oriented images with high school interns

Tsachy Weissman's Lab, *Stanford U.* - Research Intern
August 2019 - December 2019
Improving the base algorithm for facial compression, worked with Kedar Tatwawadi (PhD Stanford U.)

Tsachy Weissman's Lab, *Stanford U.* - Lead Developer
December 2019 - September 2020
Developing an open source library for the general research of Protograph LDPC Codes. Worked with Kedar Tatwawadi (PhD Stanford U.), Shubham Chandak (PhD Stanford U.)

STEM to SHTEM 2020, *Stanford U.* - Research Mentor
Summer 2020
Mentoring a group of interns in redesigning the conventional video conferencing pipeline for drastic reductions in bandwidth consumption.

Digital Puppetry Group, *Stanford* U. - Project Collaborator
August 2020 - Now
Working with a group of University Students and Industry workers in designing a performance tool for artists under quarantine conditions. Prototype use forecasted for Stanford Theater Department annual January Performance.

Projects/Research

Facial HAAC
https://github.com/roshanprabhakar/FacialHAAC
https://theinformaticists.com/2019/08/28/building-a-human-centric-lossy-compressor-for-facial-images/
The outcome of the 2019 STEM to SHTEM Internship. Proposes a novel compression algorithm for the handling of facial images.

Facial HAAC 2
https://github.com/roshanprabhakar/facial-haac-2
A solo continuation of the 2019 STEM to SHTEM compression project. Introduces more compression complexity levels, each JPEG compressed.

ProtographLDPC
https://github.com/shubhamchandak94/ProtographLDPC
A library built for the general research of LDPC codes. Implementations included for regular, irregular, protograph codes as well as channels for experimental code puncturing.

Pose Stream
https://github.com/roshanprabhakar/pose-animator-stream
https://theinformaticists.com/2020/08/25/keypoint-centric-video-processing-for-reducing-net-latency-in-video-streaming/
A result of the STEM to SHTEM 2020 Mentorship. Proposes a novel pipeline for the streaming of key spatial points in video data. Integrated Pose-animator and WebRTC technologies. Further publication pending.

Digital Puppetry
https://github.com/roshanprabhakar/digital-puppetry
A group at Stanford University involving myself and University Students. Initiated to build a continuation of the 2020 Mentorship Project for the purposes of providing a performance tool for theater artists.

Relevant Coursework

Programming - Extensive experience with Java, Python, Bash, HTML, CSS, Javascript, C. Worked in Machine Learning, Artificial Intelligence, Image Segmentation/Analysis, Data analysis, General Algorithm Design, Backend/Frontend Web Development, UX Design.
Computer Science/Math - Advanced Algebra, Calculus I, II, Comp. Sci. A, Linear Codes, LDPC Codes, Error Correction Theory, CS 231n @ Stanford U.
Misc. - Classical guitarist, current pre-college division student at the San Francisco Conservatory of Music. Please reach out for a relevant arts resume.