

DEPARTMENT OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE
COLLEGE OF ENGINEERING AND APPLIED SCIENCE

SUMMER RESEARCH OPPORTUNITIES FOR UNDERGRADUATE WOMEN

APPLICATION DEADLINE: 03/01/2018

PROJECT TITLE: Provisioning Quality of Experience for Video Communications

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Project Description

The student will work on our NSF sponsored project “EAGER: Perceptual-Quality-Aware Video Communication in Wireless Camera Networks”. Recent advances in imaging hardware and wireless communications have fostered the deployment of embedded camera sensors in various wireless networked imaging applications, such as surveillance, smart building operations, intelligent transportation, and remote health care. It is essential to guarantee the delivery of videos generated by camera sensors to an end user with good quality. In particular, the need to maintain good perceptual quality/quality of experience (QoE) is driven by many human-centered imaging applications, where human users rely on the received videos to make critical decisions. Factors such as video content characteristics, compression parameters, and network conditions have significant impacts on QoE. The objective of this project is to achieve efficient video communication in wireless camera networks by jointly considering the various factors contributing to perceptual video quality.

The student will work together with a PhD student in the mentor’s lab to solve research problems described in our project proposal. The mentor will have weekly research meetings with the student to train her research capability. Specific research tasks for the student will include: doing literature survey on state of the art research in video networking, writing C and Matlab programs to analyze video data and perform network simulation, and if possible, contribute on the writing of a research paper. The student is expected to have background knowledge in at least one of the following topics: wireless communications and networking, image processing/computer vision, or data analysis techniques.