



## **FACULTY MENTOR**

Nuno Vasconcelos and Nick Antipa

## **PROJECT TITLE**

Privacy Preserving Vision Cameras

## **PROJECT DESCRIPTION**

Description: Over the last decade, there has been much progress in computer vision algorithms for

tasks like face recognition, people tracking, surveillance, etc. In the future, these tasks could be done in environments like the home, e.g. as robots become more widespread or technologies like Alexa start to include vision. This raises privacy concerns and motivates the question of whether vision tasks can be performed with cameras that do not produce human-understandable images? These are denoted privacy preserving vision cameras (PPVCs). In this project we will investigate the design of such cameras, by considering how camera parameters can be manipulated and combined with image processing operations to achieve the PPVC goal. The project involves a collaboration between the Vasconcelos and Antipa labs, potentially covering all aspects of the problem, ranging from sensors and optics to deep learning vision techniques. We expect, however, that the initial work will be more algorithmic in nature. The project aims for a top-tier conference publication.

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This project will be remote in principle but students will also have access to a lab, if they prefer it.

## **INTERNS NEEDED**

2+ Students

## **PREREQUISITES**

1. MS candidates are expected to be adept with Python and Linux or have a strong background in optics and willingness to learn about algorithms
2. Stronger candidates will have both knowledge in computer vision and optics, but this is not required