Project Title

A study on diversity of hardcoded parameters used by different device manufacturers.

Project Description:

Digital cameras are an indispensable part of our daily lives. Essentially, our smartphones are advanced cameras that are continuously improved in each iteration of a device. Due to their large sizes photos and videos are always stored and transferred in some compressed format using one of several formats. The process for converting pixel data into a compact bit-sequence is a complicated task that is performed using encoders. These encoders are governed by standards and involve a large set of parameters that can be set by the manufacturer of a camera. This project tackles the question of determining what model and brand of camera captured a given photo. This question has important implication in digital forensic investigations and user privacy. Today there are close to 4K camera models in the market with each manufacturer potentially using different encoder implementations. The work will examine to what extent one can attribute a photo to the camera that captured only based on these parameters.

Project Type: Research

Duties/Activities: Student is expected to work full time to perform assigned tasks and get involved in daily discussions.

Required Skills: Basic knowledge in systems and algorithms. Comfort in programming Python or other prominent programming languages.

Preferred Intern Academic Level: Students at all graduate levels as well as motivated undergraduate students (preferably at junior & senior levels) will be considered.

Learning Opportunities: Data scraping from the WEB using available search APIs, data analysis, and reporting findings in a scientific manner.

Expected Team Size: This project is an extension of ongoing research work. Student(s) will work part of the team.

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