



Platform Invariant Low-level Image Processing

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Need&Relevance

- A main issue faced by companies that are developing camera modules:
 - Most image processing algorithms need tuning on different platforms, different cameras, camera settings, etc.
- A platform invariant set of algorithms are needed to overcome the need of fine-tuning



Goals&Objectives

- The objective is to come up with a set of platform invariant image processing algorithms mainly by exploiting machine learning.

Approaches

Two alternative approaches are proposed:

- Approach 1 (Parameter-free)
 - Uses a dataset to train a CNN that learns to perform platform invariant image processing
- Approach 2
 - Generates a dictionary of images that are processed with ensured quality and use these images as a look-up table for adjusting parameters for new images.

All approaches require a dataset that is populated by simulation of different cameras and settings.



Uniqueness

- To the extent of our knowledge, this is the first attempt to create a platform-independent set of low-level image processing algorithms.
- Furthermore, approach 1 is a parameter-free method.



Impact

- Accomplishment of the proposed research will give rise to immediate applications on camera industry by eliminating the need of fine-tuning for each camera platform.