# Learning the image processing pipeline

# ABSTRACT

- Image sensor designs, and these may be useful in applications ranging from consumer photography to computer vision.
- A corresponding image processing pipeline that transforms the sensor data into a form that is appropriate for the application. The need to design and optimize these pipelines is time-consuming and costly.
- A method that combines machine learning and image systems simulation that automates the pipeline design

# EXISITING SYSTEM

- The spatial resolution, dynamic range,and low light sensitivity of digital photography.In addition to improving conventional photography, these technologies open up many possibilities for novel image systems architectures.
- The new optics and CMOS sensors capabilities have already motivated novel camera architectures that extend the original Bayer RGB design
- A new generation of architectures have been pro-duced to increase spatial resolution, control depth of field through light field camera designs, extend dynamic range and sensitivity by the use of novel arrangements of color filters and mixed pixel architectures

# PROPOSED SYSTEM

- A new way of thinking of the image processing pipeline as a large collection of local linear filters. The method has been used to design pipelines for novel sensor architectures in consumer photography applications
- The image processing architecture the input data are grouped by their local features into one of a set of local classes, where locality refers to both position on the sensor array (space), pixel type (color) and response level.
- The optimal affine transform in each class is learned using camera simulation technology.

# HARDWARE REQUIRMENT

- Processor - Intel
- Speed - 1.1 Ghz
- RAM - 256 MB(min)
- Hard Disk - 20 GB
- Monitor - SVGA

# SOFTWARE REQUIRMENT

- Tool - MATLAB R2012
- Operating system - Windows Xp, 7

# REFERENCES


- Gamal, Abbas EI., Trends in CMOS image sensor technology and design.,Electron Devices Meeting. IEDM'02: 805-808, 2002
- Georgiev, Todor et al., Lytro camera technology: theory, algorithms, performance analysis., Proc. SPIE 7 Mar. 2013: 86671J
- Fredembach, C. and Lu, Y. and Susstrunk, S. Camera design for the simultaneous capture of near-infrared and visible images, 2013, US8462238 B2