

APSC 1001 & CS 1010

Deep dive into Raspberry Pi with Python

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Image Encryption and Decryption

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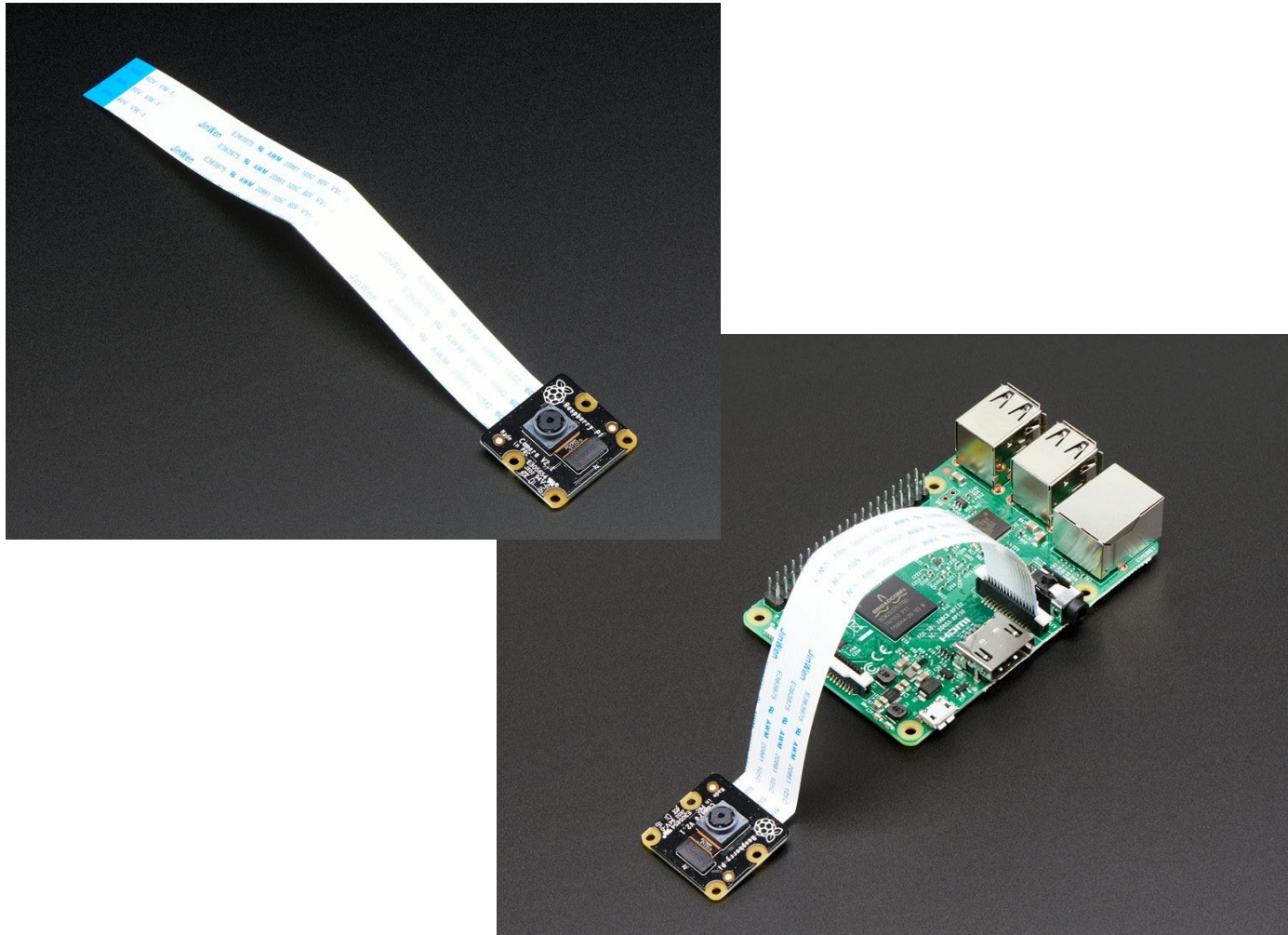
School of Engineering
& Applied Science

THE GEORGE WASHINGTON UNIVERSITY

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Photo: Kartik Bulusu

Introducing the Pi NoIR Camera



- 8 megapixel native resolution high quality Sony IMX219 image sensor
- 3280 x 2464 pixel static images
- Capture video at
 - 1920 x 1080 p30
 - 1280 x 720 p60
 - 640 x 480 p90 resolutions
- No Infrared (NoIR) filter
 - Infrared photographs or photographing objects in low light (twilight) conditions

Source:

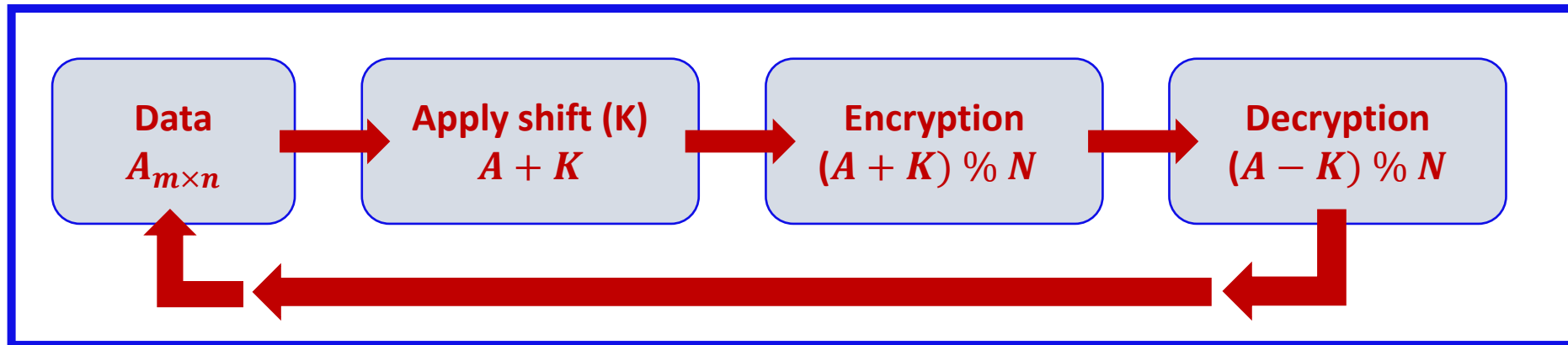
<https://www.adafruit.com/product/3100#description>

Modulo operation – Application in data encryption-decryption

Encryption is the **transformation of data** into some **unreadable form**.

Decryption is the reverse of encryption; it is the **transformation of encrypted data** back into some **intelligible form**.

In computing, the **modulo operation** finds the **remainder after division** of one number by another.



The in-class Raspberry Pi exercise will demonstrate these operations on images using Python

Goal of the lab segment

Co-work

- Observe, ask and try in groups

Make

- Build-a-hack
- Use Pi NoIR Camera to acquire an images
- Use the images for encryption and decryption

Analyze data using Python

Record

- Challenges, Opportunities, Gaps and Surprises

