Augmented Reality & Video Service Emerging Technologies

# SIFT SURF FAST BRIEF ORB BRISK

Prof. Jong-Moon Chung

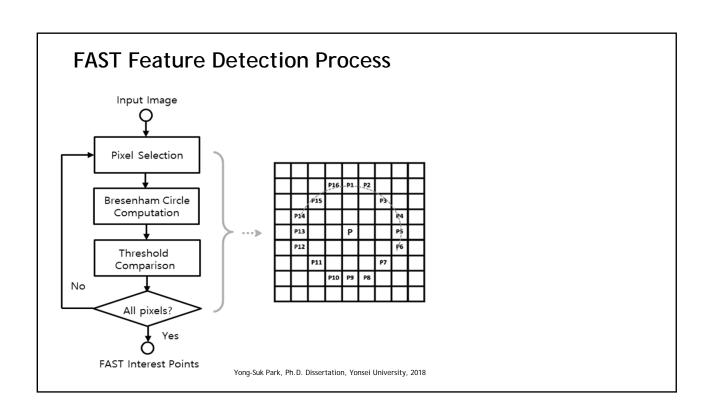
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**FAST** 

### **FAST**

# **❖ FAST: Features from Accelerated Segment Test**

- Fast matching and low computation
  - FAST can detect a greater number of interest points at the given scale compared scale-space detector methods SIFT and SURF
- Template based corner detector scheme
- Corner: Fixed scale interest point



#### **FAST**

# Bresenham Circle Computation

- Each corner has a point with two dominant and distinct gradient orientations
- Center pixel is compared with surrounding pixels in a circular pattern based on the Bresenham circle
  - Circular template to detect corners based on intensity comparison
  - Size of the connected pixels region is commonly
     9 (FAST9) or 10 (FAST10) out of a possible 16 pixels

#### **FAST**

# Threshold Comparison

- Each pixel is compared to a preset threshold value
- Determines whether the pixel value is greater or lesser than the center pixel
- Decision tree is used to quickly determine the comparison order of pixels
- FAST descriptor output is an adjoining bit vector form

# SIFT SURF FAST BRIEF ORB BRISK References

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