

Project Proposal

Image Processing Team Project 02

Team 08 GLOPIX
School of Computer Science and Engineering
Chung-Ang University

Acne Detection & Classification

From Pixels to Pores : Smart Skin Analysis through Vision

Content

1. Team Introduction
2. About Our Topic
3. Development Plan



Team Introduction : Team GLOPXI

Blend of Golbal + Pixels, meaning diverse people analyzing pixels together



김성민 @ Kim Sung Min



전지민 @ Jeon Ji Min



류수정 @ Ryu Soo Jung

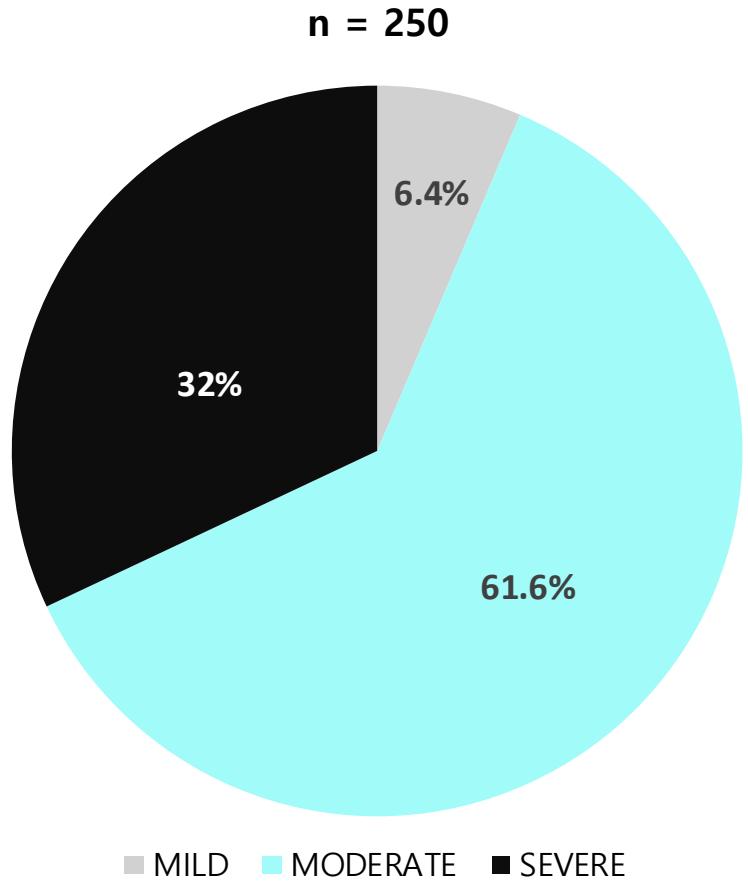
Team 01 : Global Group, One international Student + Three Korean students

About Our Topic : Motivation

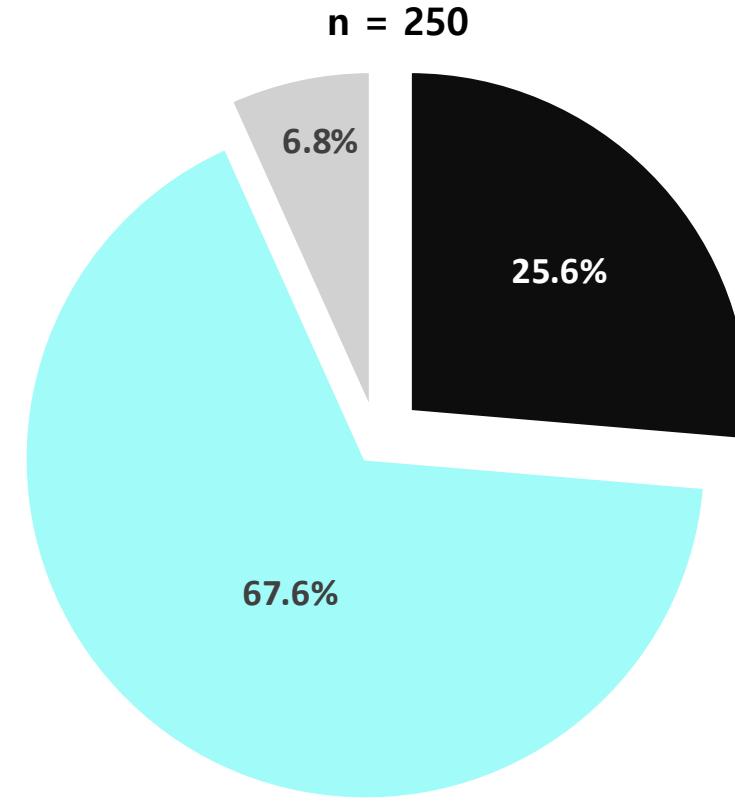


1. Skin problems like acne are common and affect confidence
2. Detecting acne automatically can assist skincare and cosmetic analysis
3. Existing tools often rely on deep learning and heavy models —
we propose a simpler, interpretable approach





Severity of acne



Self-esteem among adolescents and young adults with acne

About Our Topic : Core Idea

Project: color-based acne detection

- Convert from **RGB** to **YCrCb** to pick skin Region Mask
- Convert from RGB to HSV and find read peaks in the Hue Histogram (Get candidates)
- Use Gaussian Blur, morphological operations and contour detection to locate acne spots
- Optional classification by lesion type or severity



Input image



Ycrbc Color
Space

About Our Topic : Core Idea

Project: color-based acne detection

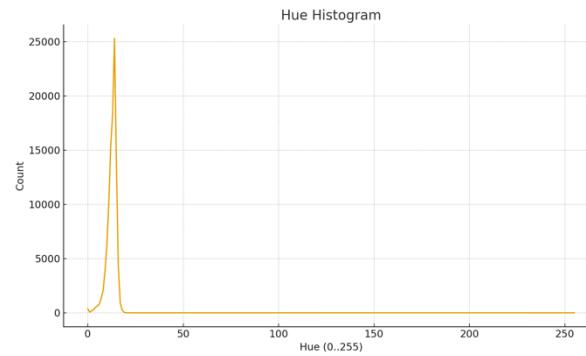
- Convert from RGB to YCrCb to pick skin Region Mask
- Convert from **RGB to HSV** and find **read peaks** in the Hue Histogram (**Get candidates**)
- Use Gaussian Blur, morphological operations and contour detection to locate acne spots
- Optional classification by lesion type or severity



Input image



Ycrbc Color Space



Hue Histogram

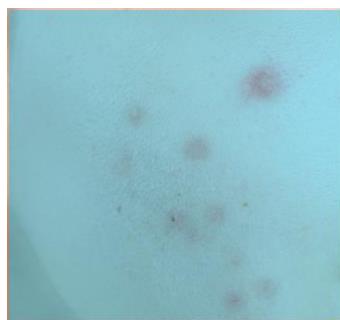
About Our Topic : Core Idea

Project: color-based acne detection

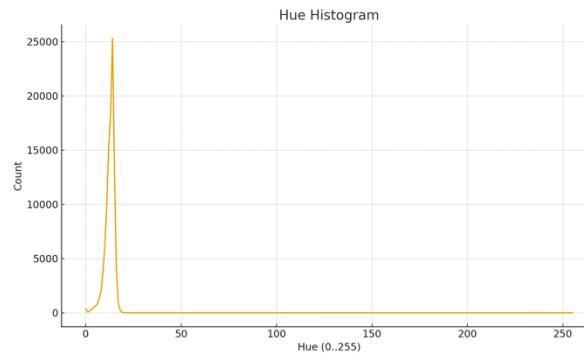
- Convert from RGB to YCrCb to pick skin Region Mask
- Convert from RGB to HSV and find read peaks in the Hue Histogram (Get candidates)
- Use **Gaussian Blur, morphological operations** and contour detection to locate acne spots
- Optional classification by lesion type or severity



Input image



Ycrbc Color Space



Hue Histogram



Candidate mask
(모폴로지 + Gaussian Blur)

About Our Topic : Core Idea

Project: color-based acne detection

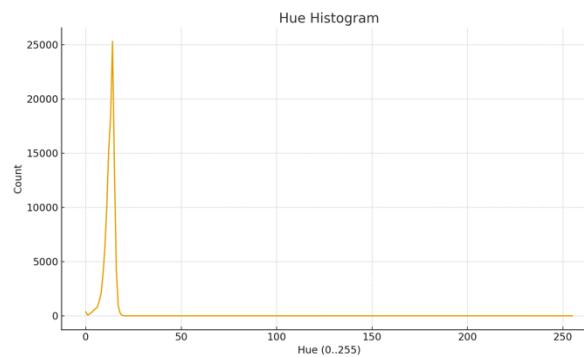
- Convert from RGB to YCrCb to pick skin Region Mask
- Convert from RGB to HSV and find red peaks in the Hue Histogram (Get candidates)
- Use Gaussian Blur, morphological operations and contour detection to locate acne spots
- **Optional classification by lesion type or severity**



Input image



Ycrbc Color Space



Hue Histogram



Candidate mask
(모폴로지 + Gaussian Blur)



Development Plan : Pipeline

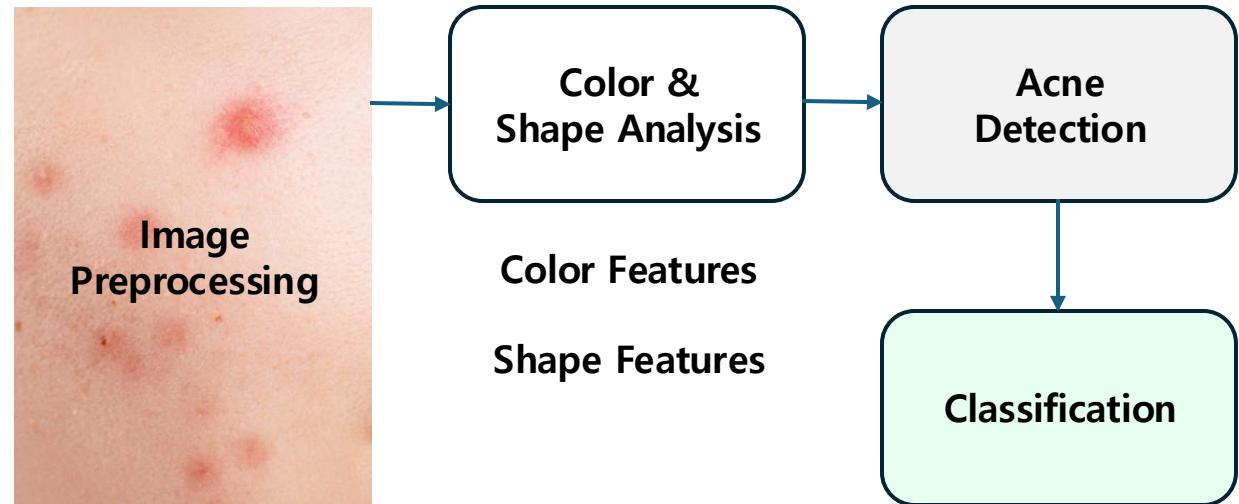
Tools : Python & OpenCV



Each member handles coding, testing, GUI, and documentation

Development Plan : Pipeline

1. Image input
2. Preprocessing (denoise & resize)
3. Color-space conversion (YCrCb, HSV)
4. Morphological filtering
5. Contour extraction & classification
6. Visualization & result display



Future Development : Goals 😎

1. Add acne-type classification using small CNN
2. Improve performance on blurred or uneven lighting conditions
3. Build a simple GUI for visualization



Our goal is to create a simple, interpretable, and globally collaborative acne detection system !

Thank You !

**Team 08 GLOPIX
School of Computer Science and Engineering
Chung-Ang University**