Face Recognition for Context-Sensitive IoT Applications

https://github.com/cmusatyalab/openface

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Introduction

- Many IoT “things” are video cameras
  - Have IP addresses and are configurable
  - Cheap and integrated into mobile devices.
  - High data rates and bandwidth.

Adding context to video-based IoT systems

- Recognizing people is crucial to human context.
- It modulates what you say and how you act.
- Why not add this context to IoT systems?

Towards exploring transient and mobile face recognition, we have created OpenFace as an open source face recognition library.

OpenFace Overview

- Faces are embedded on the unit hypersphere.
- Over 4,000 GitHub stars.

OpenFace Design

- Torch training
- Python preprocessing
- Neural Network
- FaceNet’s Inception Module
- FaceNet embedding
- Triplet Loss
- Trained Neural Network
- Classification

Results: Face Classification

Classification Accuracy

<table>
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<th>Accuracy</th>
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Results: Face Verification

- Predicts whether 2 faces are the same person [1].

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