# Chenyi Kuang

## Profile

I'm a PhD candidate in ECSE (Electrical, Computer and System Engineering) Department of Rensselaer Polytechnic Institute. My advisor is Prof Ji, Qiang. More about me can be found on my personal website.

## Education

**University of Science and Technology of China**                    (Hefei, China)
Sep 2015 – May 2019
BS degree, Automation Department, School of Information Science and Technology

**Rensselaer Polytechnic Institute**                    (Troy, NY, USA)
Sep 2019 – Dec 2024
Ph.D. candidate, Electrical, Computer and System Engineering

## Research projects

**Human Facial Expression recognition & Analysis through 3D Face Modeling:**

• learning personalized 3D face models from images/3D scans

• accurate 3D face reconstruction for joint analysis of 3D head poses and facial expressions

• Geometry-based / Physics-driven 3D facial expression analysis

**3D Eye Modeling and Gaze Tracking:**

• Constructing deformable 3D eye model for representing the anatomical eyeball structure, including eye data collection from a wearable device, data processing for camera calibration, calculation of 3D eyeball parameters (pupil center, cornea center, eyeball center and fovea position), and 3D deformable eyeball basis construction.

• Geometry-based 3D eyeball reconstruction & gaze estimation, under various head poses.

• Weakly-supervised dynamic 3D gaze estimation based on gaze interactions.

• Joint estimation of 3D eye gaze direction and gaze target position.

## Internship

**IBM summer intern**                    (Almaden Lab, San Jose, CA)
May 2022 – Aug 2022
Knowledge distillation for data free model fusion

🏠 **Address**
Troy, NY, USA

✉ **Email**
kuangc2@rpi.edu

📞 **Phone**
+1 5189615132

👤 **Personal website**
https://kuangcy1998.github.io/

📚 **Research interests**
Computer Vision,

3D Human models,

Geometry-based Machine Learning,

Physics-augmented Machine Learning,

💻 **Programming Skills**
Python (pytorch, scikit-learn, etc), matlab

# Publications

[1] Chenyi Kuang, Zijun Cui, Jeffrey O. Kephart, Qiang Ji:
**AU-Aware 3D Face Reconstruction through Personalized AU-Specific Blendshape Learning.** ECCV (13) 2022: 1-18
[Paper] [Project]

[2] Chenyi Kuang, Jeffrey O. Kephart, Qiang Ji:
**Towards an Accurate 3D Deformable Eye Model for Gaze Estimation.** ICPR Workshops (1) 2022: 109-123
[Demo] [Paper]

[3] Zijun Cui, Chenyi Kuang, Tian Gao, Kartik Talamadupula, Qiang Ji:
**Biomechanics-Guided Facial Action Unit Detection Through Force Modeling.** CVPR 2023: 8694-8703

[4] Chenyi Kuang, Jeffrey O. Kephart, Qiang Ji:
**AU-Aware Dynamic 3D Face Reconstruction from Videos with Transformer.** Accepted By WACV 2024

[5] Chenyi Kuang, Jeffrey O. Kephart, Qiang Ji:
**Interaction-aware Dynamic 3D Gaze Estimation in Videos.** Neurips 2023 Gaze Meets ML Workshop
[Paper]