**A Gentle Introduction to Computer Vision by Zezhou Cheng**

Zezhou Cheng

* Interests
  + 3D CV
  + Label-efficient visual understanding
  + CV + X (some domain area)

Computer Vision

* Build machine to see 3D world
  + Self-driving image
* Ill-posed inverse problem
  + Take a project and convert it into a 3D scene
* Convert light into meaning
* Waves of development
  + Block worlds
  + Low-level vision
  + Neural networks
  + Multi-view stereo
  + Structure-from-motion
  + Deep learning, large datasets, commercialization
* Successes
  + PAST
    - Multiview geometry
      * Take a bunch of pictures and make a 3D model
  + PRESENT
    - Recent successes: 3D deep learning
  + FUTURE
    - Challenges
      * Monocular 2D -> monocular 3D object detection
        + Lack of annotations
        + Closed-vocabulary -> open-vocabulary
      * Single-object => holistic 3D scene reconstruction
      * Static => dynamic 3D scene understanding