Cao **Yuchen** (Joshua)

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Education Background

- **University of Chinese Academy of Sciences** — **Shanghai, China**
  M.Sc. in Computer Science — *Sep, 2016-Now*
- **China University of Petroleum** — **Qingdao, China**
  B.Sc. in Automation (GPA:3.62/4 Ranking: 5/135) — *Sep, 2012-July, 2016*
- **Konkuk University** — **Seoul, Korea**
  Exchange Student for UAV Research (Project Score: 95/100) — *Feb, 2016-July, 2016*

Working Experience

- **UAV-LAB, ShanghaiTech University** — **Shanghai, China**
  Research Assistant — *Oct, 2016-May, 2017*
  - Develop the ground station for path planning with DJI SDK.
  - Configure a system with Raspberry Pi and TX1 to intercept data from LightBridge with processing and output to drone flight controller.
  - Package the DJI SDK and code written by Pro. Xiaopei Liu into one API unit.
- **TA, ShanghaiTech University** — **Shanghai, China**
  Teaching Assistant — *Sep, 2017-June, 2018*
  - Assist Linear Algebra course from Sep, 2017 to Jan, 2018
  - Assist Simultaneous Localization and Mapping course from Mar, 2018 to June, 2018

Research Experience

- **SLAM Projects**
  - Develop ORB-SLAM to track camera pose from virtual images captured from Unreal Engine 4.
  - Develop Kinect SDK to capture RGB/Depth images of chairs and use KinectFusion to recover 3D model and record pose.
  - Design a basic SLAM system with tracking, mapping and loop closure function from scratch with Matlab.
    https://github.com/CaoYuchen/SLAM1
  - Develop Polyview (Lab inner C++ code frame) to segment ground-plane and chair object, reduce Dof to 4 and track camera pose by calculating relative pose of chair.
- **Deep Learning Projects**
  - Develop FCN and HED to do retinal vessel segmentation and get final accuracy of 97%.
  - Finish all the assignments of CS231 Stanford course 2016.
  - Develop Mask RCNN to get instance segmentation of large scale environment images captured by Jackal Robot (Self-configured and calibrated camera).
- **Robot Projects**
  - Develop Schunk Robot Arm with ROS to implement 2D sculpture.
  - Develop DJI M600 with Self-build intermediate system and DJI SDK to automatically fly following planned path.

Honor & Awards

- **National Award for Inspirational Students** — **National Scholarship**
  Oct, 2014 China University of Petroleum — *Top 1%*
- **Shandong Province Electrical and Electronic Competition for the First Prize** — **Competition Prize**
  Aug, 2014 Shandong Province — *Top 1%*
- **Lotus Lantern Festival Best Volunteer in Korea** — **International Volunteer**
  Mar, 2016 Seoul, Korea — *Great Contribution*

Software & Language

- **Software Ability**
  Matlab, Python, C++, HTML, PHP, Linux, ROS, OpenCV, OpenGL, Eigen, SolidWorks, Ai, Ps.
- **Language Skills**
  Chinese (Native), English (Proficient, EILTS: 7.0/9.0), Japanese (N4)