# Chenge Yang

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## EDUCATION

**Northwestern University**, Evanston, IL, United States                                   Sep 2018 – Dec 2019
- M.S., Robotics

**The University of Manchester**, Manchester, United Kingdom                      Sep 2016 – Sep 2017
- M.S., Mechanical Engineering

**Peking University**, Beijing, China                                                             Sep 2012 – Jul 2016
- B.S., Mechanics

## WORK EXPERIENCE

**Corvus Robotics**, Brooklyn, NY                                                           June 2019 – Sep 2019
Robotics Software Engineer Intern
- Worked on ROS C++ software infrastructure of autonomous warehouse inventory drones
- Built simulation environment in Gazebo for large-scale pallet-rack warehouses
- Implemented global path planner based on Distance-Map-Planner
- Developed local mapping module with Intel RealSense D435 based on Euclidean-Signed-Distance-Field Map

**BMW Group**, Beijing, China                                                               Sep 2017 – Feb 2018
R&D Engineering Intern
- Conducted complete vehicle benchmarking research of Chinese competitors
- Analyzed technology trend and prospect of automobile industry
- Developed and implemented product strategies in cooperation with relevant R&D departments (Electronics, Connected and Automated Driving Lab, etc.)

## PROJECT EXPERIENCE                                                      **(Portfolio Page)**

**SLAM with Velodyne Lidar and Jackal UGV**                                        Jan 2019 – Apr 2019
Northwestern University, IL
- Set up Jackal UGV with Velodyne VLP-16 Lidar, RGB camera, IMU and simulated in Gazebo and RViz
- Processed the Lidar data with PCL and C++
- Integrated packages in ROS to achieve SLAM and autonomous navigation

**Human Pose Estimation and Action Recognition**                                  Feb 2019 – Apr 2019
Northwestern University, IL
- Conducted benchmarking tests on state-of-the-art human pose estimation models OpenPose and AlphaPose
- Collected and annotated human action data (4000 samples of 5 classes)
- Extracted human skeleton and features from original data using OpenPose
- Developed and trained DNN model with Keras / Tensorflow

**Sawyer Face Painter**                                                                         Oct 2018 – Dec 2018
Northwestern University, IL
- Located the drawing surface using AR tags and RGB camera
- Detected human face and extracted the edge map with OpenCV
- Transferred edge map to Cartesian drawing points with Depth-First-Search and Edge-Following algorithms
- Implemented joint velocity controllers on Sawyer 7-DOF industrial robot arm to draw the face image on horizontal surface
- Integrated teammates' codes into ROS and created topics and services for communication between modules

**Electric Bike Drive System**                                                             Sep 2016 – May 2017
The University of Manchester, Manchester, United Kingdom
- Designed an innovative two-speed gearbox in Solidworks and manufactured using CNC machine tool
- Developed and programmed an Arduino-based electronic unit to control and drive a brushless DC motor
- Integrated sensors, display and battery into the control system to achieve automatic gear shifting, torque and speed control

## SKILLS

Programming: C/C++, Python, Matlab, ROS, Git, Linux, OpenCV, PCL
CAD: Solidworks, AutoCAD, Ansys, LabView