

Weiyuan Deng

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Portfolio: <https://weiyuandeng.github.io/>

Education

- MS, Robotics**, *Northwestern University*, GPA: 3.46/4.00. 2016 – 2018
- BS, Mechanical Engineering**, *Purdue University*, GPA: 3.46/4.00. 2014 – 2016
- Scholarship: Purdue School of Engineering and Technology - SYSU: Impact Scholarship
- BS, Theoretical and Applied Mechanics**, *Sun Yat-Sen University*, GPA: 3.40/4.00. 2012 – 2016

Experience

Research

- Magnetic Tracking System for Burrowing Robot** 2017 – 2018
- Designed a magnetic tracking system that can work under granular material for a burrowing robot. Used least square method to predict 1-D and then 2-D position of robot with Arduino and two magnetometers
- Song Classification and Robot Dance** 2017
- Implemented song classifier Dejavu (Audio Fingerprinting) and planed movements (capture with Kinect Skeleton Tracking) for a humanoid robot URDF according to different songs in ROS
- Lithium Ion Battery (LIB) Optimization** 2015 – 2016
- Found power density of LIB with Finite Element Analysis, found heterogeneous grain structure of LIB with data analysis and recreated grain structure that maximize LIB's power density with MATLAB
- Analysis of Force Transfer and Arching Effect in Sand Pile and Silo** 2014
- Comparison Analysis of arching effect and force transmission in a sand pile and in a silo ensiled with sand, by means of DEM (discrete element method)

Project

- Card Classification** 2017
- Recognized cards except Joker in real time with OpenCV and Convolutional Neural Net in TensorFlow
- Musical Instrument Classifier** 2017
- Classified five different instruments (piano, violin, flute, cello, clarinet) with Mel-Frequency Cepstral Coefficients and SVM
- Baxter Shuffle** 2016
- Baxter robot played a simplified classic shell game with ROS using inverse kinematics
- Machine Design** 2015 – 2016
- Designed a high capacity ball feeder with Creo and analyzed loading with ANSYS
 - Designed plastic-recycling crusher with Creo and analyzed loading to varies structures with ANSYS
 - Designed a medical vending machine with Creo and programming for drug delivery

Work

- **UAV aerial survey**, *Foshan Zhongwei Company of Surveying and Mapping*, 2018
- **Underground pipeline survey and Topographic map drawing of urban area with AutoCAD**, *Heyuan Jingtong Company of Surveying and Mapping (Shunde Branch)*, 2016
- **Metalworking Training**, *Guangdong University of Technology*, 2014
- **Student Assistant**, *Key Laboratory of Optoelectronic Material and Technology of China in SYSU*, 2012

Technical Skills

- Software: Python, C/ C++, Fortran, MATLAB/ Simulink, Mathematica, Linux OS, ROS, Git/ Git Hub, ANSYS, Creo, Gazebo, V-Rep, Android Studio, EAGLE, Onshape, MPLAB, LabVIEW
- Knowledge: Machine Learning (artificial neural networks, decision trees, Bayesian networks), Computational Geometry (geometric query problems), Computer Vision, Finite Element Analysis (stiffness and strength visualizations), Optimal Control of Nonlinear Systems (analytical and numerical methods), PCB design, PIC32 Microcontroller
- Fabrication: Manual mill and lathe, 3D printer, laser cutter, CNC lathe, machine assembling

Other

- **Hostess**, *AliGame Comic-Con*, 2018
- **Volunteer**, *Indiana State Museum*, 2015
- **Volunteer Teaching Assistant**, *Xing'er School of Deaf Children*, 2012
- **Level 6 Certificate of Piano in China**
- **Grade 8 Certificate of Taekwondo in China**
- Fluent in Chinese Mandarin and English; Intermediate in Cantonese; beginner in Japanese