Chenyu Zhang

(+30) 690 695 7502 | czhan129@jhu.edu | angelicaz.github.io

EDUCATION

Whiting School of Engineering, Johns Hopkins University (JHU), MD, U.S.A. Jan. 2021 – now

M.S.E. program in Robotics

- **Major**: General Robotics
- **Core Courses**: Robot Devices, Kinematics, Dynamics, and Control (A); Robot Motion Planning (A-); Kinematics (A-); Computer Vision (A); Algorithms for Sensor-based Robotics; Computer Integrated Surgery I (A+).

School of Electronic Information Engineering, Beihang University (BUAA), Beijing, China

Bachelor of Engineering in Electronic Information Engineering Sep. 2016 – Jun. 2020

- **Major**: Electronic Science and Technology
- **GPA**: 3.67/4.0
- **Rank**: 2/35
- **Core Courses**: Calculus (96/100), C Language Design (96/100), Linear Algebra (99/100), Fundamental Physics (100/100), Complex Function (98/100), Control Theory, Digital Signal Processing, Stochastic Process Theory, Communication Theory, Information Theory

National University of Singapore (NUS), Singapore Jul. 2019 – Sep. 2019

Visiting student, Department of Electrical and Computer Engineering

RESEARCH PUBLICATIONS

1) Vipul Gupta, Adam Kortylewski, Zhuowan Li, **Chenyu Zhang**, Yingwei Li, Alan Yuille. "SwapMix: Diagnosing and Regularizing the Over-Reliance on Visual Context in Visual Question Answering", *IEEE/CVF Conference on Computer Vision and Pattern Recognition* (CVPR 2022), accepted.
2) Zhonghan Zhang, Yancao Jiang, **Chenyu Zhang**, Chun Zhang, and Xiangyu Li. "The Optimization of Localization and Navigation for Vision-Based Robot", *IEEE International Conference on Integrated Circuits, Technologies and Applications* (ICTA 2019), p.180-181, 13-15 Nov. 2019.
3) **Chenyu Zhang**, Cunjun Ruan, "Investigation of W-band High Power TWT Amplifier with Broadband Output Window". *PhotonIcs & Electromagnetics Research Symposium* (PIERS 2019), p.560-565, 17-20 Dec. 2019.
4) Renjie Li, Cunjun Ruan, Ayesha Fahad, **Chenyu Zhang**, and Shasha Li. "Broadband and High-power Terahertz Radiation Source Based on Extended Interaction Klystron", *Scientific Reports*, 2019, 9:4584.

INDUSTRY EXPERIENCE

Momenta, Beijing, China Aug. 2020 – now

- Designed proper algorithms in C++ to optimize the reprojection error of HD maps based on g2o framework
- Data processing and visualization in Python
- Cooperate with my colleagues to build a large engineering project

RESEARCH EXPERIENCES

Scene Graph Generation, CCVL lab, JHU Jan. 2022 – Now

Research Assistant | Advisor: Prof. Alan Yuille

- Learn from the idea of semantic parsing in Natural Language Processing
- Use the Transformer based encoder-decoder framework
- To be continued

Measure the Robustness of VQA Models, CCVL lab, JHU Sep. 2021 – Nov. 2021

Research Assistant | Advisor: Prof. Alan Yuille

- Discovered that recent VQA models rely too much on the irrelevant context
- Modified the LXMERT model by replacing the Faster RCNN features with scene graphs
- Compared the accuracy and robustness between the models trained on scene graphs and Faster RCNN features
- Visualized the attention weight of the model
- Collaborate with my colleagues and published a CVPR paper

Design of Scanning Sensor for Ground Flatness Measurement, NUS Jul. 2019 – Sep. 2019

Research Assistant | Advisor: Prof. Loh Ai Poh

- Designed and built scanning sensor based on Lidar, which can calculate ground flatness based on distances and angles of returned signal
- Performed detailed analysis on Lidar sensing resolution by developing program in MATLAB
- Constructed experimental system consisting of Lidar connected with Raspberry Pi, performed hardware experiment, and processed collected data
- Successfully demonstrated feasibility of developed sensor and achieved agreement between experimental results and theoretical analysis

An Improved K-means Algorithm in Multi-track Image Recognition, Tsinghua University

Advisor: Professor Chun Zhang Mar. 2019 – Feb. 2020

- Identified deficiencies of traditional K-means algorithm and proposed new clustering algorithm to solve multi-track image recognition problem
- Implemented proposed algorithm, performed experiment, and benchmarked its performance with state-of-the-art clustering algorithm
- Analyzed down-sampling performance of proposed algorithm thoroughly
- Broadened algorithm into clustering circles and curves; analyzed thoroughly the anti-noise performance, accuracy and efficiency of total algorithm

AWARDS AND HONORS

Aug 2021, the LCSR Distinguished Scholarship

Jun 2020, University **Outstanding Undergraduate Student**

May 2019, Third Prize of Innovation and Entrepreneurship Scholarship by Ministry of Industrialization and Information Technology

Nov 2018, **PI** of National Undergraduate Training & Research Program for Innovation and Entrepreneurship, evaluated **Excellent Project**

Dec 2018, **Outstanding Award** of University Academic Scholarship (top 3%)

May 2018, **First Prize** of CUPT (China Undergraduate Physics Tournament) in North China Division, as the **Captain** of the Team II

Dec 2017, **First Prize** in the Physics Competition in University
Dec 2017, Outstanding Scholarship (top 5%)
Nov 2017, **First Prize** of University Outstanding Study Scholarship (top 5%)
Oct 2017, Competitive-world Scholarship (top 1%)

SKILLS AND INTERESTS

Language:	English (fluent), Chinese (native) **TOFEL:** 104 (29+25+25+25) | **GRE:** 323 (V156+Q167+3.0)
Computer:	C/C++, Python, MATLAB
Mathematics:	Calculus, Complex Analysis, Differential Equation, Linear Algebra, Probability Theory
Interests:	School band Ⅱ (violinist), school chorus; Social Sciences (Game Theory, Psychology); Volunteer as science teacher at the local primary school