

# Chenyu Zhang

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## EDUCATION

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**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 (on-going); Algorithms for Sensor-based Robotics (on-going); Computer Integrated Surgery I (on-going).

**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

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- 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)*, submitted.
- 2) Zhonghan Zhang, Yanco 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

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**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

## RESEARCH EXPERIENCES

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### **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
- Collaborate with my colleagues and submitted 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

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*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

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**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