Zhenhao Zhao

Curriculum Vitae

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Education

Ph.D. Student — **George Washington University (GWU)**, DC, USA
2022 - present, Department of Biomedical Engineer
Assistive Robotics &Telemedicine (ART-MED) Lab
Advisor: Prof. Chung-Hyuk Park

Master of Science — **George Washington University (GWU)**, DC, USA
2020 - 2022, Department of Computer Science
Intelligent Aerospace Systems Lab (IASL)
Advisor: Prof. Peng Wei

Bachelor of Science — **Beijing Information Sci &Tech University (BISTU)**, Beijing, China
2016 - 2020, Department of Computer Science

Exchange Program — **Oakland University (OU)**, MI, USA
2018 - 2019, Department of Computer Science

Undergraduate Thesis — **Tsinghua University (THU)**, Beijing, China
2019 - 2020, Department of Computer Science
Knowledge Engineering Group (KEG)
Advisor: Prof. Juanzi Li

Research Interests

Computer Vision, Machine Learning

Publications

AIAA SciTech 2023 (under review) — **Camera Vision based Perception for UAS Autonomous Landing**
Zhenhao Zhao, Jonathan Lee, Zongyao Li and Peng Wei
AIAA SciTech Forum, 2023

Research and Work Experiences

Research Assistant — **George Washington University**, DC, USA
Aug. 2022 - Present
Lab: Assistive Robotics &Telemedicine (ART-MED) Lab
Research Focus: Artificial intelligence system, computer vision, medical data processing

Research Assistant — **George Washington University**, DC, USA
Dec. 2021 - Present
Lab: Intelligent Aerospace Systems Lab (IASL)
Research Focus: Automatic Landing, Computer Vision

Machine Learning Engineer — **Union Strong Technology Co., LTD**, *Beijing, China*
Mar. 2021 - Aug. 2021
Project: Optimization of 3D DSA aneurysm segmentation model

- Building and training the No New U-Net (nnUNet) to do the accurate segmentation for the 3D digital subtraction angiography images.
- The dice coefficient was taken as the evaluation standard, and the accuracy had reached above 90 percent.

Research Assistant **Infervision Medical Technology Co., LTD**, Beijing, China
Aug. 2020 - Mar. 2021
Lab: Institute of Advanced Research (IAR)
Project: Medical Image Processing
- Deep learning-assisted screening of asymptomatic Covid-19
- Using deep learning model to diagnose tuberculosis

Honors & Awards

Aug. 2018 - Aug. 2019 **Beijing municipal scholarship for overseas study**, *Beijing, China*
Tuition for 40 credits to study computer science courses in USA and living expenses per month.

Professional Activities

Journal Reviewer Journal of Aerospace Information Systems

Research and Academic Projects

Research Project **UAS vision and perception**, *GWU, DC, USA*
Dec. 2021 - Present, Intelligent Aerospace Systems Lab (IASL), Advisor: Prof. Peng Wei
- Design and implement UAS vision and perception algorithms to assist landing automatically
- Build and train the object detection models to do the pedestrians and cars detection and compare the performance between two models.
- Inference on the drone level video dataset. (Collected by ourselves)
- Track objects by the DeepSORT
- Deploy the whole perception algorithm on the drone level computer. (Jetson Xavier NX)

Undergraduate Thesis **Relationship mining for intelligent manufacturing companies**, *THU, Beijing, China*
Oct. 2019 - Jun. 2020, Knowledge Engineering Group (KEG), Advisor: Prof. Juanzi Li
- Using the Cypher statement of neo4j graphic database to process 13 enterprise declarations and construct the enterprise information knowledge map.
- Using Python Word document processing tool to extract and clean data, and using Py2neo class library to constructs the knowledge map
- Visualize data and provides a friendly interface

Course Project **White blood cell classification**, *GWU, DC, USA*
Aug. 2021 - Jan, 2022, Advisor: Prof. Kinga Dobolyi
- Classify the blood smear images by the deep learning methods.
- Train and tune the Resnet, EfficientNet and Alexnet and compared the performance by the accuracy, confusion matrix, specificity, sensitivity etc.
- Result analysis: saliency map, average images, histogram of pixels distribution, etc.

Course Project **Robotic perception and vision**, *GWU, DC, USA*
Dec. 2021 - May 2022, Advisor: Prof. Taeyoung Lee
- Visual odometry: Deploy the sparse reconstruction on the self-collected video.
- Face tracking: Record a video and track my face in it by the KLT algorithm.

Selected Courses:

- Machine Learning: 4/4
- Linear Algebra: 4/4
- Data structure: 4/4
- Robotic perception and vision: 4/4
- Theory of Computation: 4/4

Skills

Programming	Python, C/C++, R, Java
Toolbox/Software	PyTorch, TensorFlow, Caffe, OpenCV, Neo4j
Operating System	Linux, Windows, MacOS