Zhenhao Zhao

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04/18/1998

Summary Statement

- Postgraduate student in computer science.
- Take one year machine learning algorithm internship in Beijing.
- Solid basic knowledge for computer science and good at computer vision.
- Passionate and interest in machine learning and artificial intelligence.

Education

George Washington University (GWU), USA **08/2020-present**

- M.S. in Computer Science, School of Engineering and Applied Science

Beijing Information Science and Technology University (BISTU), China **09/2016-07/2020**

- B. S in Computer Science and Technology, School of Computer Science

Oakland University (OU), USA **08/2018-08/2019**

Scholarship for Overseas Study by BISTU (4/187 Municipal Level)

- computer science courses (40 credits)

Tsinghua University (THU), China **10/2019-07/2020**

Cooperative project for BISTU and THU

- undergraduate thesis project (8.5 credits)

Internship

Union Strong Technology Co., LTD **03/2021-08/2021**

Department：Department of Algorithm

Position：Machine Learning Engineer

Responsible project：Optimization of 3D DSA aneurysm segmentation model

Project description：The No New U-Net (nnUNet) was used for accurate segmentation of 3D Digital subtraction angiography images. The dice coefficient was taken as the evaluation standard, and the accuracy had reached above 90 percent.

- Data cleaning: Image clipping, normalization, label processing, etc.
- Model training:
  - Training and tuning models.
  - Draw loss and accuracy curves, record the necessary data, and analyze the training process
- Result analyzing:
  - Analyzed the DICE value and other morphological information
  - Visualize the segmentation with the VTK tool.
  - Generate confusion matrix, calculate sensitivity, specificity, and other statistical indicators.

Infervision Medical Technology Co., LTD **08/2020-02/2021**

Department: Institute of Advanced Research - Research and Development Department

Position: Research assistant

- Assists the algorithm researchers in thesis writing and participates in three research projects:

- Deep Learning-Assisted Screening of Asymptomatic Covid-19
- Using deep learning model to diagnose tuberculosis

- Assist the algorithm researchers in data analysis by using R and Python, including calculating p value and Kappa value between the deep learning models and human doctors.
- Participates in a weekly paper sharing session of deep learning algorithms, familiar with state-of-art models and machine learning knowledge

Research and academic project

UAS vision and perception **01/2022-present**

Research – Department of Computer Science - GWU

Mentor: Peng Wei

Leader of Three Members

- Design and implement UAS vision and perception algorithms to assist landing automatically.
- Train and tune the RetinaNet and YOLOv5 to do the pedestrians and cars detection and compare the performance between two models.
- Inference on the drone level video dataset. (Collected by ourselves)
- Deploy the object tracking between the frames by using Kanade-Lucas-Tomasi (KLT) Tracker
- Deploy the whole perception algorithm on the drone level computer. (Jetson Xavier NX)

White blood cell classification **08/2021-01/2022**

- *Academic project in GWU*
- 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.
- Image clean and analysis: saliency map, average images, histogram of pixels distribution, etc.

Relationship mining for intelligent manufacturing companies **10/2019-06/2020**

undergraduate thesis project - Department of Computer Science and Technology - THU

Mentor: Juanzi Li, Lei Hou

- 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

Other computer vision project **10/2019-06/2020**

- Visual odometry: Deploy the visual odometry algorithm on the self-collected video.
- Face tracking: Record a video and track my face in it by KLT algorithm.

Technical skills

- Proficient in computer vision techniques:
  - Deep learning methods: can train and use different models to do the classification, segmentation, and object detection.
  - Traditional methods: Visual odometry, feature and object tracking etc.
- Proficient in machine learning and python/pytorch
- Can use C, R, java and C++
- Can work on Linux OS, SQL and Neo4j