Tianle Cheng

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EDUCATION

University of Science and Technology Beijing   **Beijing, China**
Bachelor of Engineering| Artificial Intelligence   **09/2019 – 06/2023**

New York University
Master of Science in Applied Urban Science and Informatics   **Anticipated Start Date: 09/2024**

RESEARCH EXPERIENCE

Research on Human Neural Rendering Based on NeRF Model   **Beijing, China**
Project Researcher   **2022.09-2023.06**

- Proposed utilizing Transformer to model the relationship between human posture and clothing deformation locally and globally in space and time, considering that humans wearing loose clothing were difficult to model by NeRF (Neural Radiance Fields)
- Reconstructed the dynamic human model and static scene model, realized the posture rendering of the human body, and trained NeRF model in the canonical space under the guidance of the SMPL (Skinned Multi-Person Linear) model
- Generated more realistic dynamic details of clothing and could handle the movement of clothing like the open jacket compared to methods that rely heavily on the nude body template topology and provided significant guidance for the field of virtual fitting, human customer service, and game production fields
- Developed a professional Web (https://github.com/MatrixBrain/awesome-NeRF) and gave back to the research area by cataloguing NeRF's papers, which was highly recommended by other researchers

Research and Application of 3D Human Posture Based on Transformer   **Beijing, China**
Project Researcher   **2022.01-2023.05**

- Read and summarized the research background, development ideas, proposed methods, and experimental results of dozens of papers on Human Pose Estimation and Human Reconstruction
- Utilized the Transformer model for video-based 3D Human Pose Estimation, participated in proposing the instance-guided time attention mechanism, instance-guided space attention mechanism, and cross-scale attention mechanism to model the contextual depth feature
- Achieved state-of-the-art results on three widely used video 3D pose estimation datasets, including Human 3.6M, 3DPW, and CMU

Cross-model, cross-dataset Click-Through Rate Prediction Implementation   **Beijing, China**
Project Researcher   **2022.07**

- Learned the principle and main models of click-through rate prediction task, collected and read papers about FM, Wide & Deep, DeepFM, NFM, and other algorithms, learned RecBole recommendation system framework, and completed preliminary practice on the Movielens dataset
- Built FM, XDeepFM, ONN, and AutoInt+ models with FuxiCTR code framework, trained and tested these models with KKBox and Avazu datasets on Kaggle, and reached state-of-the-art performance

Research on Optimization for Path Planning   **Beijing, China**
Project Researcher   **2022.06**

- Compared the papers and codes of RRT (Rapidly Exploring Random Tree Star), RRT*, informed-RRT*, and debugged them
- Wrote and Optimized the program based on the RRT*-Smart algorithm and found it took at least tens of seconds or even hundreds of seconds for the RRT* method to find a path that costs less than 20, while the RRT*-Smart method only took 0.19 seconds on average

COMPUTER SOFTWARE COPYRIGHT

Image Classification System based on Multi-model Fusion   **2022.05**

- Utilized Inception V3, Swin Transformer, ResNest, ResNext, and DenseNet networks to build the leaves classification model and predicted the labels of pictures in the test by voting
- Utilized K-fold cross-validation to evaluate model performance and select optimal parameters, helping to prevent overfitting
- Enrolled in *Classify Leaves Contest* and earned an outstanding score of 0.976 out of 1.0

HONORS

People's Third Prize Scholarship, awarded to 40% students by USTB   2022

SKILLS

Computer Skills:Python, C, Java, PyTorch, TensorFlow, SQL, MATLAB, Linux, LaTex
Others: Guqin, boxing, guitar, piano, blues music