Meng-zhe Qiu

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Education

Shaanxi University of Science and Technology, Shaanxi, China 2019 – Present

B.S. in Computer Science and Technology, expected June 2023
GPA 3.43 / 5.00 (Top 10%)

Ulster University, Belfast, UK 2022 – Present

B.S. in Computer Science and Technology, expected June 2023

Publications

- Qi, Yong, **Mengzhe Qiu**, et al. "End-to-end ancient ceramic classification toolkit based on deep learning: A case study of black glazed wares of Jian kilns (Song Dynasty, Fujian province)." Ceramics International 48.23 (2022): 34516-34532. DOI: 10.1016/j.ceramint.2022.08.033
- Qi, Yong, **Mengzhe Qiu**, et al. "Extracting Fingerprint Features Using Autoencoder Networks for Gender Classification." Applied Sciences 12.19 (2022): 10152. DOI: 10.3390/app121910152
- Haizhao Jing,Jianglin Shi, **Mengzhe Qiu**, et al. "Super-resolution reconstruction method for space target images based on dense residual block-based GAN." Optics and Precision Engineering 30.17 (2022): 2155-2165. DOI: 10.37188/ope.20223017.2155

Fellowships and Awards

Fellowship

- Scholarship of Academic Excellence (Top 15%) Apr. 2021
- Outstanding Performance Scholarship Oct. 2021
- Scholarship of Academic Excellence (Top 15%) Apr. 2022

Award

- LAN QIAO Collegiate Programming Contest (Shaanxi Province Division), First Prize Oct. 2020
- LAN QIAO Collegiate Programming Contest (Shaanxi Province Division), First Prize Apr. 2021
- Group Programming Ladder Tournament (Shaanxi Province Division), Bronze Medal May. 2021
- LAN QIAO Collegiate Programming Contest (National Finals), Third Prize Jun. 2021
- Mathematical Contest In Modeling, Successful Participant May. 2022
- WeChat Big Data Challenge (215 / 627) May. 2022
- Kaggle UW-Madison GI Tract lmage Segmentation (405 / 1548, Top 27%) Jul. 2022
- Kaggle Google AI4Code - Understand Code in Python Notebooks (176 / 1135, Top 16%) Nov. 2022

Research Experience

End-to-end ancient ceramic classification toolkit based on deep learning: A case study of black glazed wares of Jian kilns (Song Dynasty, Fujian province) Jan.2022 – Aug.2022

- Proposed an end-to-end classification toolkit base on 1D-convolution network for ancient ceramics.
- Applied the MCC evaluation metric to comprehensively evaluate the model prediction ability, with the classification accuracy and MCC for the three black glaze wares is 92.76% and 89.14%.
- Used smooth gradients to explore the effect of chemical composition on the prediction of black glaze wares.

Extracting Fingerprint Features Using Autoencoder Networks for Gender Classification Jul.2021 – May.2022

- Investigated the effect of fingers by using separate fingers for gender classification and found that the best performing finger was the right ring finger, which achieved an accuracy of 92.455%

- Compared with six typical automatic feature extraction methods coupled with nine classifiers are evaluated in our dataset
- Exploded the impact of features by visualizing the concentration of fingerprints. According to the analysis, annular/angular (primary), divergent (secondary) and linear (tertiary) may be closely related to gender.

Super-resolution reconstruction method for space target images based on dense residual block-based GAN Apr.2022 – Jul.2022

- Proposed Generative Adversarial Networks Method for Super-resolution Reconstruction of Degraded Images from Space Target Adaptive Optics Imaging Telescope
- Constructed a spatial target AO simulation image data set, the residual network is replaced by a dense residual block, and the relative average loss function is introduced into the discriminator network
- Compared with the blind image super-resolution method based on deep learning, the PSNR is improved by 6.5% and the SSIM is improved by 4.9% on average.

PROFESSIONAL SERVICES

- IEEE, Student Member
- ACM, Student Member
- China Computer Federation (CCF), Student Member

SKILLS

- Programming Languages: **Python, C++/ C, R**, Java, Html
- Machine Learning Tools: **PyTorch, Scikit-learn, Monai, Captum**
- Document Processing: **LaTeX, MarkDown**
- Development: **Qt, Web**
- Operation System: **Linux, Windows**, Mac OS
- Database: **MongoDB, NoSQL, MySQL**
- Others: **Web Spider, Adobe Illustrator**