Zhuoyu Feng

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EDUCATION

Columbia University   New York, NY
M.S. in Electrical Engineering, Specialization in Data-Driven Analysis and Computation   Sep 2021 – Expected Dec 2022
- GPA: 3.75
- Courses: Applied Machine Learning, Reinforcement Learning, Computer Vision II, Introduction to Database

Shandong University   Shandong, CN
B.Eng. in Electronic Science and Technology   Sep 2017 – Jun 2021
- GPA: 3.86/4.00, 90.59/100
- Courses: Digital Image Processing, Information Foundation 2 (Machine Learning + Deep Learning), Software Engineering
- Achievement: Second-Class Scholarship for Academic Excellence, First-Class Scholarship for Research and Innovation

SKILLS

- Programming Language: Proficient in Python, Basic C, Java, SQL, JavaScript, HTML/CSS, MATLAB
- Computer Software/Tools: Linux, Git/GitHub, GCP, Microsoft Office, Photoshop, Pr

PROFESSIONAL EXPERIENCE

Stardetect Tech Inc.   Beijing, CN
AI Algorithms Intern, Focused on SAR Image Segmentation   Apr 2021 – Jul 2021
- Applied 4 neural network models including DeepLabV3Plus, UNet and HRNet to segment the SAR images into 7 classes, evaluated and quantified the performance of each model by calculating the FWIoU in the testing set
- Created a new loss function by combining pixel loss and superpixel loss together, and increased the FWIoU value of each model by at least 6%, intended to enhance the performance of the AI algorithms implemented on the satellite
- Deployed an efficient edge detection algorithm to reduce image processing time by 25%

Institute of Automation, Chinese Academy of Sciences   Beijing, CN
Summer Research Intern, Focused on Facial Expression Recognition   Jul 2019 – Sep 2019
- Built a ResNet model by Python - Pytorch and embedded CBAM (Convolutional Block Attention Module) into the network
- Trained and validated the model across over 28000 images in Linux server, and visualized the training process on web by Visdom
- Achieved 92% recognition accuracy in the CK+ dataset with CBAM embedded, increased by 5%, and decreased the overall training loss by over 53%, compared with the original model
- Conducted research and published the paper *Facial Expression Recognition via a CBAM Embedded Network* on EI journal *Precedia Computer Science* as the first author. Link: https://www.sciencedirect.com/science/article/pii/S1877050920316355?via%3Dihub

PROJECTS

Development of Image Quality Assessment, Distortion Classification and Restoration System   Feb 2020 – Jul 2020
- Image Quality Assessment: implemented six neural network models, including ResNet, GAN, and optimized the models based on the DMOS scores of the database samples to assess the quality of the input images; drew training's curve charts by TensorBoard
- Image Distortion Classification: classified the input images into three distortion classifications (noise, blur and compression)
- Image Restoration: restored distorted images with deblur, denoise and super-resolution reconstruction algorithms to improve image quality
- Developed a web application by Django and integrated three submodules into the online system to automate real-time image assessment, classification and inpainting after uploading an image

GitHub link: https://github.com/RainFZY/IQA-and-Distortion-Classification-System

NLP (English Cloze Task)   Jan 2020 – Apr 2020
ASC20 Student Supercomputer Challenge, SDU Team Leader for AI Task
- Led team of 3 to develop and optimized an NLP model based on BERT-large by Python - Pytorch
- Conducted pre-training on the open dataset using CUBA as a tool for parallel computing and acquired the pre-training model
- Utilized the pre-training model for fine-tuning in the official dataset as the downstream task, including training on the train set, fine-tuned parameters on the dev set, and finally attained an optimal model capable of predicting cloze answers on the test set

Hands-On Machine Learning   Sep 2019 - Present
- Analyze data using the linear regression techniques (ridge regression and pth-order polynomial regression) to predict the miles per gallon a car will get using six quantities (features) about that car
- Selling price prediction of cars using Linear Regression, Logistic Regression and kernel SVMs
- Predicting wins based on in match performace of multiple players in CS:GO using Decision Trees, Random Forests, Gradient Boosted Trees and implement calibration methods.
- Constructing Risk Profiles for Cervical Cancer using Random Forests, XGBoost and AdaBoost, employing techniques like SMOTE to process imbalanced dataset.