Wenhua Chen

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Senior Algorithm Engineer

BACKGROUND

Newcastle University Jun 2017 - Dec 2018

- Computer Science, Master's degree, Scores top 5%; Data Structures and Algorithms, Machine Learning, Deep Learning
- Graduate with first-class grade (Distinction); Awarded International Student MSc Scholarship

Sun Yat-sen University Sep 2011 - Jun 2015

- Geological Engineering, Bachelor's degree; Advanced Mathematics, Linear Algebra, Probability Theory

Professional Skills

- With four years of work experience, my main interest lies in the application of computer vision algorithms, including text/image/video understanding and processing
- Project experience includes text recognition/recommendation, image classification/enhancement/object detection, video object tracking/action recognition/short video production, etc.; I also obtained several patents with my projects
- Commonly used programming language is Python and I'm familiar with Pytorch framework and packages like cv2, numpy, etc.; I'm also familiar with Linux command line, Mysql and Git operations; I understand Java/C++ and have relevant development experience
- For project details and recent news, please refer to my personal website: https://wenhua-chen.github.io/

WORK EXPERIENCE

Shenzhen Yeahka Technology Co. LTD | Senior Algorithm Engineer | R&D Department Apr 2020 - Present

Live Face Detection project: tetermine whether the face in the image is a real person, and block fake face attacks such as masks/screens

- Many of the company businesses need this service and the demand continues to grow, we used to call third-party interfaces and pay a lot of money
- Responsible for the development and deployment of mobile-side and server-side algorithms, and mobile-side SDK development; mobile-side algorithms include face key point detection and face action recognition, such as mouth-opening and blinking, server-side algorithm refers to static face live detection; mobile-side SDK development includes a dynamic library written in C++ to encapsulate the code for face action recognition, and an Android SDK written in Java to encapsulate UI interface, camera calls, interaction with the dynamic library, etc.
- The project was successfully implemented and deployed in all the company's APPs, replacing the original third-party interface, and was also put online to Yeahka Cloud (a SaaS platform) for external commercial use
- Awarded company's Best Project of the Month; first author of patent "Small Software Module for Rapid Face Live Detection Based on Artificial Intelligence Technology and its Implementation Process and Method", patent number: 202110563614.0

AI-assisted Video Editting: Users upload images/video clips to automatically generate short videos, used for product promotion, such as food package introduction, video store visits, etc.

- The company's in-store e-commerce business has grown significantly, and needs to help merchants promote their products and attract more peorple, manual video production can no longer meet the current demand
- Responsible for the backend development and deployment, including picture clarity enhancement and beautification, picture to video tranformation with dynamic effects, video transitions, text effects, etc., while adding AI voice with subtitles and background music; work together with the Image and Text Recommendation System, supporting to search copy/image material according to keywords
- The project was successfully implemented and delivered to the business side, with an increase of about 200% in video output number and a significant increase in products' exposure rate, and the paid consumers number increased by 578.9% within six months (including other factors); the interface was also put online to Yeahka Cloud for external commercial use; the project was merged with the Image and Text Recommendation System and awarded company's Best Project of the Year
- First author of patent "Video generation method, system, terminal device and medium", patent number: 202210726814.8

Image and Text Recommendation System: automatically generate promotional copies based on product content, assist copywriters in copywriting, speed it up and improve results

- In addition to short video promotion, copywriting promotion is also important, and the number of copywriters cannot keep up with the fast-growing business demand, which also leads to high employment cost
- Responsible for backend algorithm development, including text database creation and cleaning, word division and word vector model training, keyword and weight determination, unsupervised text classification and recommendation, etc.; Both text and images support keyword search, and also support recommendation based on content similarity
- The project was successfully implemented and delivered to the business side, and the copywriting time was reduced from 3 hours to about 1 hour per article, which is a 300% increase in efficiency and a significant reduction in the staffing cost

Pedestrian tracking & behavior recognition project: Track multiple targets simultaneously in multiple views and identify their behavior in real-time

- Through video understanding, try to analyze customer traffic and customer preferences and give abnormal behavior warnings to help merchants operate better
- Responsible for backend algorithm development and deployment, including extracting motion + appearance features for tracking, doing behavior recognition through continuous frames, building multi-process pipeline for real-time video processing, etc.
- Awarded company's Best Project of the Month; first author of patent "Behavior Recognition Method, Device, Terminal Equipment and Storage Media", patent number: 202210321459.6

Shanghai Quality Creation Technology Co. LTD | Algorithm Engineer | R&D Department Jan 2019 - Jan 2020

AI-assisted Medical Diagnosis Project: Collaborated with Shanghai Ruijin Hospital, using AI to assist doctors in reviewing radiographs, suggesting the location of suspicious lesions on DR chest radiographs(medical images) and giving predicted probabilities

- Responsible for data cleaning and algorithm development, including AI diagnostic models for various diseases such as scoliosis and lung nodules, involving multi-label/multi-class classification, object detection, and instance segmentation
- In clinical tests, the lung nodules achieved 97% in recall and 72% in precision, and the scoliosis achieved 100% in accuracy, all of which were approved by the radiologist team of Ruijin Hospital

OTHER PROJECTS

Receipts identification | Independent developers

- Quickly crop the product image and SKU information from receipt images, and return the identified information in json format, for store sales analysis and inventory organization
- Implement product module positioning by yolov5, combine with opencv traditional image algorithm to solve the problem of text positioning and redundant information interference, post-processing to correct the results of table recognition

Video Translation | Independent developers

- Chinese/English video translation, including voice to text, text translation and AI voice synthesis, as well as bilingual subtitle production

OTHER SKILLS

- IELTS 7, Driver's license