

YIYANG CAI

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EDUCATION

University of California, Berkeley

Master of Engineering in Computer Science (GPA: 3.67)

Aug. 2020 - Dec. 2021

Berkeley, CA, the United States

Beihang University

Bachelor of Engineering in Automation (GPA: 3.8)

Sep. 2016 - Jun. 2020

Beijing, China

SKILLS

Programming Languages:

Python, C++, Matlab

Development & Tools:

PyTorch, Keras, OpenCV (in both Python and C++), Pandas,

Scikit-learn, vim, Git

WORK EXPERIENCE

Algorithm Intern (Outstanding Intern Award)

Sep. 2020 - Jun. 2021

Baidu. Inc — Computer Vision Technology Department

Beijing, China

Generation customized Chinese fonts with few exemplars

- Utilized **coherent points shift** algorithms to set up trajectory correspondence between Chinese characters.
- Designed a BiLSTM-based model to generate new fonts' stable trajectory.
- Designed a FUNIT-like model for few-shot font generation and achieved commercial level results. The model has been served in Baidu's product at <https://srf.baidu.com/default/>
- Upgraded model with **Attention Mechanism** and significantly improved model performance. Submitted to and under-reviewed by CVPR 2022.

Algorithm Intern

May. 2020 - Aug. 2020

Chinese Academy of Sciences, Institution of Automation.

Beijing, China

Researched on Optical Character Recognition (OCR)

- Reviewed papers about Optical character recognition.
- Developed a SegLink based model for OCR detection process.
- Developed an automatic text-line data generator to train CRNN model for OCR recognition process.
- Accelerated model deployment with **ONNX** and **TensorRT**, implemented missing TensorRT ops.

PUBLICATIONS AND PATENTS

Few-shot Font Generation by Learning Fine-grained Local Styles (Accepted by **CVPR 2022**, at Baidu.)

An inpainting algorithm based on edge recovering.

A Few-shot Font Generation Method Based on Deep Adversarial Network.

A Font Stroke Weight Generation Method Based on Deep Adversarial Network.

A Few-shot Font Generation Method Based on CycleGAN.

PROJECTS

Capstone Project at UC Berkeley

Sep. 2020 - Dec. 2021

Mouse-free cursor control with gesture and gaze using neural networks

- Utilized **MediaPipe** to extract key-points of hands and Designed LSTM Network with **PyTorch**.
- Combined key-point detection and LSTM together and built an end-to-end **gesture recognition** model.
- Designed an end-to-end **gaze-tracking** model to control the cursor more directly.
- Re-wrote both gesture recognition and gaze-tracking model into APIs and developed manager program to call them with user's different commands.