

ZEYU ZHAO

$$\text{MOBILE: } \frac{19 \cdot \left(\int_{-\infty}^{+\infty} e^{-\frac{x^2}{2}} dx \right)^4 \cdot \sum_{k=0}^{11} \left(\int_0^{+\infty} x^k \cdot e^{-x} dx \right)}{3 \cdot \sum_{k=1}^{\infty} \frac{1}{k^2}} + \sum_{k=0}^{\infty} \frac{13884090}{e \cdot k!}$$

WEBSITE: zzeyu.comGITHUB: [/zeruniverse](https://github.com/zeruniverse)

EMAIL: i AT zzeyu.com

EDUCATION BACKGROUND

Harvard University

Cambridge, MA

M.Sc. in Computational Science & Engineering, GPA: 4.0 / 4.0

2017 - 2019

- Focus on Statistics, Machine Learning and Parallel Computing

Simon Fraser University (Dual Degree Program)

Burnaby, Canada

B.Sc. in Computing Science, Minor in Math, GPA: 4.22 / 4.33, First Class with Distinction

2014 - 2017

Zhejiang University (Dual Degree Program)

Hangzhou, China

B.Eng. in Computer Science & Technology, GPA: 3.91 / 4.0, China National Scholarship (top 1%)

2012 - 2014

WORK EXPERIENCE

NVIDIA

Santa Clara, CA, USA

Sr. System Engineer - Machine Learning

Mar. 2019 - Present

- Main developer of SSD / DSSD / YOLOv3 architectures in NVIDIA TLT (Transfer Learning Toolkit), all support quantization-aware training / post-training quantization and model pruning.
- Implemented TensorRT plugins (with CUDA) so that TLT models can run on NVIDIA DeepStream.
- Main developer of the feature registration part of the internal access control system based on face recognition.
- Contributed to development of a high-quality internal model for people detection.
- Implemented simulators to generate synthetic data to assist network training, using both UE4 and NVIDIA Omniverse.
- Contributed to an internal few-shot learning project for fraud detection.

NVIDIA

Santa Clara, CA, USA

System Engineer Intern - Machine Learning

May. 2018 - Aug. 2018

- Independently researched and implemented a deep learning pipeline for multi-task facial attributes classification.
- Implemented Single Shot MultiBox Detector (SSD) as an alternative primary detector for our internal deep learning pipeline.

SFU Computational Logic Lab

Burnaby, Canada

Research Assistant (Advisor: Oliver Schulte)

Jan. 2015 - Mar. 2017

- Implemented a Markov model based on ~35M game events to evaluate actions on ice hockey games.
- Co-author of three related papers and one pending patent.

SFU Vision and Media Lab

Burnaby, Canada

Research Assistant (Advisor: Ze-Nian Li)

Jan. 2016 - Dec. 2016

- Researched in using local features (SIFT, HOG and Gabor) and linear SVM for facial expression recognition.

Arista Networks Inc.

Burnaby, BC, Canada

Software Developer Intern - EOS Kernel

Sept. 2015 - Dec. 2015

- Upgraded the iproute package and the corresponding test files to match the new kernel by investigating and rewriting most Arista-specified patches for this package.
- Adapted and rewrote Arista-specified kernel patches to improve its compatibility with Linux kernel 3.18.
- One patch I wrote was merged to Linux Kernel upstream (*printk: add clear_idx symbol to vmcoreinfo*).

SKILLS

- Programming Languages: Python, C/C++, MySQL, JavaScript, HTML, CSS, PHP, MATLAB, R
- Packages / Toolkit: Pandas, Scikit-learn, Matplotlib, PyMC3, PyTorch, TensorFlow, Keras, CUDA, TensorRT
- Knowledge of Database, Algorithms, Machine Learning, Computer Vision, Graphics, OS, Networking and Parallel Computing

OPEN SOURCE PROJECTS

Neural Colorization

PyTorch / GAN

<https://github.com/zeruniverse/neural-colorization>

119 Stars

- Designed a model to colorize gray-scale images and introduced GAN-based loss to improve model performance.
- Implemented training and inference pipeline in PyTorch
- Model trained on Places2 dataset and performs well on gray scenery photos downloaded from Internet.

Fast Artistic Style Transfer for Videos

Torch / Lua / Bash

<https://zeruniverse.github.io/fast-artistic-videos>

98 Stars

- Improved the deep learning based algorithm ([arXiv:1604.08610](https://arxiv.org/abs/1604.08610)) for video artistic stylization.
- The improved algorithm runs ~10x faster than the original algorithm and preserves temporal consistency.

Password Manager

PHP / JavaScript / Crypto

<https://github.com/zeruniverse/Password-Manager>

155 Stars

- Led the development of an open-source online tool to manage passwords, with strong client-side encryption based on AES-256, SHA512, PBKDF2 and a self-designed obfuscation algorithm.
- Hit GitHub PHP “trending today” and “trending this week” boards.

Real Time Gesture Recognition

C++ / OpenCV / MFC

https://github.com/zeruniverse/Gesture_Recognition

108 Stars

- Designed the recognition algorithm using the Haar-like features, skin color model and local features for hands.
- Implemented a simple gesture recognition software using OpenCV and MFC.
- Demo video on YouTube was watched for ~6K times.

CryptoStego

JavaScript / JPEG / DCT

<https://github.com/zeruniverse/CryptoStego>

241 Stars

- Designed and implemented a compression-robust steganography algorithm using Discrete Cosine Transformation (DCT), down-sampling and quantization matrix utilized in JPEG encoding
- Used Mersenne Twister algorithm and WebCrypto for secure message encryption.

QQRobot

Python

<https://github.com/zeruniverse/QRobot>

704 Stars

- Reverse engineered web-client of QQ (a popular live chat software) and got the protocol
- Implemented a robot that interacts with users in QQ