Yilan Chen

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Education

Shanghai Jiao Tong University (SJTU) Shanghai, China

John Hopcroft Center for Computer Science *Jul. 2019 - present*

Full-time Research Intern working with Prof. Quanshi Zhang

Xi'an Jiaotong University (XJTU) Xi'an, China

Bachelor of Engineering in Information Engineering *Aug. 2015 - Jun. 2019*

- Overall GPA: 3.64/4.0 (87.27/100) Major GPA: 3.75/4.0
- Ranking: Top 15% in 159 students
- Core Courses: Programming Fundamentals, Data Structure and Algorithms, Discrete Mathematics, Operating System, Computer Network, Complex Analysis and Integral Transformation, Probability Theory and Mathematical Statistics, Signals and Systems, Digital Signal Processing, Stochastic Signal Analysis, The Elements of Information Theory

National University of Singapore (NUS) Singapore

Summer Workshop by School of Computing *Jul. 2018 – Aug. 2018*

- GPA: A (advanced curricular studies followed by a month's research experience)

Standard English Tests: TOEFL: 104 (R29 L29 S22 W24) GRE: 321 (V155 Q166) + 3.0

Publications

Explaining Knowledge Distillation by Quantifying the Knowledge.

- Xu Cheng, **Yilan Chen***, Zhefan Rao*, Quanshi Zhang.
- IEEE/CVF Conference on Computer Vision and Pattern Recognition. **CVPR 2020.**

Research Experiences

Explaining Knowledge Distillation by Quantifying the Knowledge *Jul. 2019 - Nov. 2019*

John Hopcroft Center for Computer Science, SJTU

Research Intern [Advisor: Prof. Quanshi Zhang, SJTU]

- Collaboratively proposed a method to interpret the success of knowledge distillation by quantifying and analyzing the task-relevant and task-irrelevant visual concepts that were encoded in intermediate layers of a deep neural network (DNN);
- Collaboratively formulated three hypotheses on the relationships between knowledge distillation and DNN, and designed three types of mathematical metrics to evaluate feature representations of the DNN;
- Performed extensive experiments to diagnose various DNNs and verified all the three hypotheses;
- ***My roles:*** contributed to method development and hypotheses formulation; wrote scripts for implementation, experiments and data analyses; led the derivation and validation of the third hypothesis.

Face Aging Prediction with Active Appearance Model *Mar. 2019 - Jun. 2019*

Image Processing and Recognition Laboratory (IPRL), XJTU

Undergraduate Thesis [Advisor: Prof. Xuanqin Mou and Dr. Yijun Liang, IPRL, XJTU]

- Aligned the training set (FG-NET aging database) shapes into a common co-ordinate frame using Generalized Procrustes Analysis; applied PCA to construct a statistical shape model;
- Warped images to the mean shape using a triangulation algorithm and sampled the warped image;
- Recursively normalized the samples and applied PCA to get a statistical texture model;

- Concatenated the parameters of shape model and texture model, and applied a further PCA to get a combined appearance model;
- Learned aging functions that evaluated the relationship between model parameters and ages using multiple kinds of machine learning algorithms, including Lasso, Ridge, ElasticNet, SVR, Random Forest;
- Located face points of new faces using Dlib, and used the learned aging function to explain the face aging effects and reasonably predict the aging effects of new faces.

Book Recommendation System Based on IBM Cloud *Jul. 2018 - Aug. 2018*

School of Computing, NUS
Summer Workshop Group Project [Advisor: Prof. Teo Yong Meng, NUS]

- Acquired advanced knowledge regarding big data and cloud computing, including community detection, GPU parallel programming, cloud computing with big data, IaaS, PaaS, and SaaS;
- Developed Onebook, a cloud-based book recommendation website application that can recommend valuable books according to users' social network;
- Used Twitter API to retrieve users' Twitter content and then introduced IBM Watson Personality Insights to analyze users' personalities;
- Designed user & book similarity algorithms to generate the customized book recommendations;
- Built back-end with Node.js and Express, front-end with Jade, and subsequently deployed the application on IBM cloud.

Honors & Awards

Outstanding Student Award (Top 10% in the department) *Sep. 2016 and 2018*
"Siyuan" Merit Scholarship (Top 20%) *Sep. 2016, 2017, and 2018*
Third prize, Xi'an Jiaotong University mathematical modeling contest *Jun. 2016*
XJTU's 120th Anniversary, Certificate of Honor, chorus performance *Apr. 2016*

Technical Skills

Programming: Proficient in Python, C/C++, MATLAB, JavaScript
Scientific Software and Hardware Development: PyTorch, Linux, LaTex, FPGA, ARM