Xin Wen

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EDUCATION

Tongji University **Shanghai, China**

B.S. in Computer Science expected graduation: July 2021

- GPA: 89.9/100, Ranking: Top 8% (including non-experimental-area students)
- Relevant Coursework: Operating Systems, Principle of Compilers, Computer Organization, Computer Networks, Software Engineering, Pattern Recognition, Introduction to Image Processing, Multimedia Technology, Computer Graphics, etc.

Mathematical Intensive Training Class (Innovation Experimental Area) Sept. 2017 – Jan. 2019

- GPA: 87/100, Ranking: 2/15
- Relevant Coursework: Mathematical Analysis, Advanced Algebra, Theory of Probability, Statistics, Discrete Mathematics, Combinatorics, Numerical Analysis, Complex Analysis, Ordinary Differential Equation, etc.

The University of Manchester **Manchester, UK**

United in Manchester International Summer School July 2019 – Aug. 2019

- Relevant Coursework: Artificial Intelligence, Machine Learning, Business and English Communication etc.

AWARDS

- 2nd place in ECCV 2020 Workshop VIPriors Image Classification Challenge (July 2020)
- Qidi Scholarship of Tongji University (Top 1%, June 2020)
- 1st Prize in Undergraduate Mathematical Contest in Modeling of Tongji University (May 2020)
- 15th out of 1514 teams of Machine Reading Comprehension Task of 2020 Language and Intelligence Challenge (May 2020)
- 8th out of 705 teams of Video Copy Detection Track of 2019 CCF Big Data & Computing Intelligence Contest (Nov. 2019)
- Champion in China of Covestro International Data Science Hackathon (Nov. 2019)
- Outstanding Student Scholarship Second Prize (Nov. 2019)
- 1st Prize in Collegiate Programming Contest of Tongji University (Apr. 2019)
- Silver Medal of the 43rd ACM International Collegiate Programming Contest Asia-East Continent Final (Dec. 2018)

EXPERIENCES

Computer Vision Intern, Visual Computing Group of ByteDance AI Lab **Shanghai, China**

Computer Vision Researcher Jan. 2020 – Present

- Work on Video Representation and Video Retrieval, advised by Dr. Jie Shao and Prof. Xiangyang Xue
- Propose a framework to improve video representation by aggregating context information of frame-level features; Exploit contrastive learning for negative mining and memory bank mechanism to increase the capacity of negative samples
- Prove the property of automatic hard negative mining of softmax-based loss on normalized features through gradient analysis; Conduct extensive experiments on video retrieval datasets such as CC_WEB_VIDEO, FIVR-200K, and EVVE, achieving state-of-the-art performance and demonstrating the effectiveness of the proposed method
- A research paper has been accepted by WACV 2021: *Temporal Context Aggregation for Video Retrieval with Contrastive Learning*

Research Assistant in College of Electronics and Information Engineering, Tongji University **Shanghai, China**
Research Assistant Sept. 2019 – Present

- Conduct research on vehicle and person re-identification (ReID), advised by Prof. Yin Wang
- Adopt positive-unlabeled learning and propose an adversarial network to train classifier by directly using both labeled and unlabeled data, to deal with the challenge of insufficient fully labeled data; Perform extensive experiments on popular ReID datasets and achieve significant performance gain
- Our co-authored paper *Person Re-identification Using Positive-Unlabeled Learning* has been contributed to CVPR 2020

PROJECTS

ECCV 2020 Workshop VIPriors Image Classification Challenge **Online**
Core Member June 2020 – July 2020

- Proposed a novel two-phase pipeline to improve the generalization ability of CNN models for image classification under the data-deficient setting: train a generalizable teacher model via self-supervised learning; distill knowledge from the teacher model to the student model in a self-distillation manner while fine-tuning; Proposed a novel margin loss for contrastive learning
- Won 2nd place in the VIPriors image classification challenge, and the corresponding paper *Distilling Visual Priors from Self-Supervised Learning* has been accepted by ECCV 2020 Workshop. [Ranking][Paper]

Video Copy Detection Track of 2019 CCF Big Data & Computing Intelligence Contest **Online**
Team Leader Oct. 2019 – Nov. 2019

- Originated chamfer similarity for Near-Duplicate Video Retrieval and perform frame-level video matching with maximum flow algorithm
- Implemented all the code from scratch individually, and ranked No. 8th out of 705 teams. [Code]

Chinese Chess Engine Construction **Shanghai, China**
Team Leader May 2019 – June 2019

- Developed a Chinese Chess Engine featured by its high-efficiency adversarial search algorithm [Code]
- Served as teaching assistant, helped build the Chinese Chess AI competition platform
- Served as team leader, won the 1st place in the final Chinese Chess AI contest in the course

FPGA-Based Smart Car **Shanghai, China**
Personal Project Dec. 2018 – Jan. 2019

- Designed structural components with AutoCAD; Designed and implemented relevant controlling and planning algorithms; Programmed for related modules such as infrared sensor, ultrasonic sensor, drive motor, Bluetooth with Verilog HDL; Developed relevant controlling Android application
- Assembled and developed a smart car that support automatic tracking and obstacle avoidance independently

PUBLICATIONS

- Jie Shao*, **Xin Wen***, Bingchen Zhao, Xiangyang Xue, "*Temporal Context Aggregation for Video Retrieval with Contrastive Learning*" (*equal contribution), in WACV 2021, [Paper]
- Bingchen Zhao, **Xin Wen**, "*Distilling Visual Priors from Self-Supervised Learning*", in ECCVW 2020, [Paper]

SKILLS

- **Programming**: C/C++, Python, MATLAB, Verilog HDL, HTML, JavaScript, React.js
- **Platform and Toolkits**: Linux, Bash, Git, LaTeX, PyTorch, TensorFlow, OpenCV, OpenGL, Vim, MySQL, FFmpeg
- **Multimedia**: Adobe Photoshop, Illustrator, Premiere Pro, Audition, After Effects, Acrobat DC, XD