

Delong Chen (陈德龙)

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Education

BS in Computer Science	Hohai University , supervised by Prof. Fan Liu	Sept. 2017 – Jun. 2021 <i>Nanjing, China</i>
<ul style="list-style-type: none">First-Class Outstanding Graduation Thesis in Jiangsu ProvinceOutstanding Graduate of Hohai University (the highest honor)GPA 83/100 (4.2/5.0 or 3.3/4.0)		
Summer Program	University of British Columbia	Jul. 2018 – Aug. 2018 <i>Vancouver, Canada</i>
<ul style="list-style-type: none">Courses: Linguistics and Computation for Natural Language ProcessingScored 85/100 on linguistics, supervised by Dr. Ryan TalorScored 97/100 on computation, supervised by Dr. Scoot Mackie		

Work Experiences

Research Intern	MEGVII Research	Oct. 2021 – Present <i>Beijing, China</i>
Topic: Efficient Large-scale Vision Language Pretraining		
Research Assistant	Hohai University	Jun. 2021 – Present <i>Nanjing, China</i>
Topic: Vision-language, Music-motion, and Hydrological Forecasting		

Research Projects

Large-scale Vision Language Pretraining	MEGVII Research
<ul style="list-style-type: none">Proposed ProtoCLIP for improved representation grouping and enhanced robustness against modality gap in large-scale Vision Language Pretraining (VLP). ProtoCLIP improved linear probing and zero-shot accuracy by 5.8% and 2.0%, and matched the performance of CLIP with 4×fewer epochs (paper, code).Explored vision-to-language and language-to-vision Knowledge Distillation (KD), proposed an information theoretic method to select suitable teachers. (on-going research).	
Vision Language Learning for E-commerce	Hohai University
<ul style="list-style-type: none">Created a multimodal E-commerce dataset MEP-3M for vision-language / fine-grained / hierarchical classification / long-tailed learning. Awarded <i>LTDL-IJCAI'21</i> Best Dataset Paper (paper, dataset).Extended MEP-3M dataset to zero-shot product classification, image-text retrieval, semantic segmentation, and automatic checkout-oriented object detection pretraining (on-going research).	
Music-driven Conducting Motion Generation (Graduation Thesis)	Hohai University
<ul style="list-style-type: none">Created the largest orchestra conducting dataset <i>ConductingMotion100</i> consisting of 100 hours of paired music and motion clips (dataset). Employed music-motion pretraining on <i>ConductingMotion100</i> to improve music beat tracking performance (on-going research).Proposed the first deep learning-based music-driven conducting motion generation model (paper, Turing test video), and developed a demo system <i>VirtualConductor</i> based on 3-D animation and pose transfer (paper, Demo video). Awarded as IEEE ICME'21 Best Demo and First-Class Outstanding Graduation Thesis of Jiangsu Province.	
Hydrological Forecasting	Hohai University
<ul style="list-style-type: none">Constructed a <i>HHForecasting</i> codebase for flood forecasting. Benchmarked 12 types of machine learning and deep learning baseline approaches, including Linear Regression, SVR, LSTM, TCN, STGCN, etc.Proposed wavelet decomposition for improved significant wave height prediction performance (paper).Validated Domain Adaptation (DA) for flood forecasting and proposed the first unsupervised approach for transfer learning-based flood forecasting (paper).	

Other Research Experiences

- Authored survey papers on deep learning-based single sample face recognition [7], facial fatigue detection [8], and scanning image-based COVID-19 diagnosis [9,10].
- Implemented a fabric defect detection system based on Gabor Wavelets + CNN and won the 3rd prize in the 8th “China Software Cup” Competition, East China Division Finals, as the team leader.
- Implemented a trainable 2-layer non-linear neural network using Assembly language as the coursework of “The Principle and Application of Microcomputer”.
- Lead a national innovative project “Missing Person Searching based on Age-Invariant Face Recognition”. Funding: 20,000 RMB.

Awards and Prizes

Academic Awards

- First-Class Outstanding Graduation Thesis in Jiangsu Province
- Outstanding Graduation Thesis of Hohai University
- Best Demo Award in *IEEE International Conference on Multimedia and Expo (ICME) 2021*
- Best Dataset Paper Award in *Long-Tailed Distribution Learning Workshop, IJCAI 2021*
- Best Presentation Award in *International Conference on Big Data and Artificial Intelligence (BDAI) 2021*

Honors and Prizes

- Outstanding Graduate of Hohai University
- Outstanding Communist Youth League Member of Jiangsu Province
- Nomination of the Person of the Year in Jiangsu Province
- Person of the Year of Hohai University in 2019
- Delegate of the All-China Student Federation
- Third Prize of the 8th China Software Cup, East China Division Finals (team Leader)

Skills

- **Coding:** Python, PyTorch
- **English:** IELTS 7.0
- **Music background:**
 - Received diploma in violin performance from Central Conservatory of Music (top level).
 - Served as the head of Hohai University Symphony Orchestra (May. 2019 - Sept. 2020).
 - 20+ public performances of composed music.
 - Organized an online performance of 11 orchestras ([video](#)). Responsible for music composition, mixing, and video making. 20+ Media coverage: [Xinhua News](#), [People's Daily](#), etc.

Publications

Vision and Language

- [1] **Delong Chen**, Zhao Wu, Fan Liu, et al.
[Prototypical Contrastive Language Image Pretraining](#)
ArXiv Pre-print, submitted to IEEE Transactions on Neural Networks and Learning Systems, T-NNLS.
- [2] **Delong Chen**, Fan Liu, et al.
[MEP-3M: A Large-scale Multi-modal E-Commerce Products Dataset](#)
IJCAI 2021 Workshop on Long-Tailed Distribution Learning. (Oral, Best Dataset Paper Award)

Music and Motion

- [3] Fan Liu, **Delong Chen** (corresponding), et al.
[Self-Supervised Music Motion Synchronization Learning for Music-Driven Conducting Motion Generation](#)
Journal of Computer Science and Technology, JCST, (SCI, CCF-B indexed, JCR: Q3, IF: 1.871) 2022.
- [4] **Delong Chen**, Fan Liu, et al.
[VirtualConductor: Music-driven Conducting Video Generation System](#)
2021 IEEE International Conference on Multimedia & Expo, ICME'21. (Oral, Best Demo Award)

Hydrological Forecasting

- [5] **Delong Chen**, Fan Liu, et al.
[Significant Wave Height Prediction based on Wavelet Graph Neural Network](#)
2021 4th International Conference on Big Data and Artificial Intelligence, BDAI'21. (Oral, Best Presentation)
- [6] **Delong Chen**, Ruizhi Zhou, Yanling Pan, Fan Liu.
[A Simple Baseline for Adversarial Domain Adaptation-based Unsupervised Flood Forecasting](#)
Technical Report, ArXiv, 2022.

Face Recognition and Analysis

- [7] Fan Liu, **Delong Chen** (joint first author), et al.
[Deep Learning based Single Sample Face Recognition: A Survey](#)
Artificial Intelligence Review, AIRE, 2022. (SCI, JCR Q1, IF: 9.588)
- [8] Fan Liu, **Delong Chen**, et al.
[A Review of Driver Fatigue Detection and Its Advances on the Use of RGB-D Camera and Deep Learning](#)
Engineering Applications of Artificial Intelligence. (SCI, JCR Q1, IF: 7.802)

Image Segmentation

- [9] **Delong Chen**, Shunhui Ji, Fan Liu, et al.
[A Review of Automated Diagnosis of COVID-19 Based on Scanning Images](#)
2020 6th International Conference on Robotics and Artificial Intelligence, ICRAI'20. (Oral)
- [10] Fan Liu, **Delong Chen** (corresponding), et al.
[Let AI Perform Better Next Time—A Systematic Review of Medical Imaging-based Automated Diagnosis of COVID-19: 2020-2022](#)
Applied Sciences, 2022. (SCI, JCR Q2, IF: 2.838)
- [11] Fan Liu, Junfeng Wang, **Delong Chen**, et al.
[Asymmetric Exponential Loss Function for Crack Segmentation](#)
Multimedia Systems, 2022. (SCI, JCR Q2, IF: 2.603)