

Delong Chen (陈德龙)

Personal website: chendelong.world

Email: chendelong@hhu.edu.cn

Background

BSc in Computer Science	Hohai University	Sept. 2017 – Jun. 2021
Outstanding Graduation Thesis, Outstanding Graduate (GPA: 83/100)		Nanjing, China
Research Assistant	Hohai University	Jun. 2021 – present
Research area: multimodal learning, hydrological forecasting		Nanjing, China
Research Intern	MEGVII Research	Oct. 2021 – present
Research area: vision language pretraining		Beijing, China
Summer Program	University of British Columbia	Jul. 2018 – Aug. 2018
Linguistics and Computation for NLP (Score: 85/100, 97/100)		Vancouver, Canada

Research Experience

Vision and language

- Proposed ProtoCLIP [1] for improved representation grouping and enhanced robustness against modality gap for CLIP-style VLP. It improves linear probing and zero-shot accuracy by 5.8% and 2.0%
- Created an E-commerce dataset MEP-3M [2] dataset for research of vision-language / fine-grained / hierarchical / long-tailed learning. It is awarded as Best Dataset Paper in LTDL@IJCAI'21.
- Extended MEP-3M for zero-shot transfer, retrieval, image segmentation, and automatic checkout-oriented object detection pretraining [3].

- [1] [Delong Chen](#), Zhao Wu, Fan Liu, et al. Prototypical Contrastive Language Image Pretraining. *NeurIPS 2022* submission. [[paper](#)][[code](#)]
- [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*. (**Best Dataset Paper**) [[paper](#)][[dataset](#)]
- [3] Fan Liu, [Delong Chen](#), et al. MEP-3M: A Large-scale Multi-modal E-Commerce Products Dataset. *Pattern Recognition* submission.

Music and motion

- Created the largest orchestra conducting dataset *ConductingMotion100* which consists of 100 hours of paired music and motion clips. A [competition](#) is held with this dataset.
- Proposed the first deep learning-based music-driven conducting motion generation model M²S-GAN [4] that integrates multimodal generative SSL and discriminative SSL into a unified framework.
- Developed a demo system *VirtualConductor* based on M²S-GAN, 3D animation and pose transfer. It is awarded as ICME'21 Best Demo [5] and Outstanding Graduation Thesis of Hohai University [6].

- [4] Fan Liu, [Delong Chen](#)*, et al. Self-Supervised Music Motion Synchronization Learning for Music-Driven Conducting Motion Generation. In *Journal of Computer Science and Technology, JCST*, (SCI, CCF-B) 2021. 37, 539–558. [[paper](#)][[code](#)][[video](#)]
- [5] [Delong Chen](#), Fan Liu, et al. VirtualConductor: Music-driven Conducting Video Generation System. *2021 IEEE International Conference on Multimedia & Expo, ICME'21, Demo Track*. (**Best Demo**) [[video](#)]
- [6] Music-driven Conducting Motion Generation based on Motion Decomposition and Self-supervised Cross-modal Perceptual Loss (**Outstanding Graduation Thesis of Hohai University**, selected a candidate for Outstanding Graduation Thesis of Jiangsu Province, under review process).

Hydrological forecasting

- Constructed a codebase named *HHForecasting* that implements 12 types of machine learning and deep learning baselines for flood forecasting.
 - Proposed wavelet decomposition for improved significant wave height prediction performance [7].
 - Validated domain adaptation for flood forecasting and proposed the first unsupervised baseline [8].
- [7] 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*. (**Best Presentation**) [[ArXiv](#)]
- [8] Delong Chen, Ruizhi Zhou, Yanling Pan, Fan Liu. A Simple Baseline for Adversarial Domain Adaptation-based Unsupervised Flood Forecasting. *Technical Report*, 2022. [[ArXiv](#)]

Other project experience

- Implemented a fabric defect detection system based on Gabor Wavelets + CNN and won the third prize in the 8th “China Software Cup” Competition East China Division Finals as the team leader.
- Implemented a trainable two-layer non-linear neural network using assembly language as the coursework of “The Principle and Application of Microcomputer”.
- Conducted national-level innovative training project “Missing Person Searching System based on Age-Invariant Face Recognition” as the team leader.

Selected Awards

Academic awards

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

Honors

- Outstanding Graduate of Hohai University.
- Outstanding CYL Member of Jiangsu Province.
- Nomination of the Person of the Year in Jiangsu Province.
- Person of the Year of Hohai University in 2019.
- Elected as a delegate of the All-China Student Federation.

Prizes

- Third Prize of the 8th China Software Cup, East China Division Finals (team Leader).

Skills

- IELTS English Test (Academic): 7.0
- Programming: Python, PyTorch

Music Experience

- Received the diploma in violin performance from Central Conservatory of Music (the highest level).
- Served as the head of the Hohai University Symphony Orchestra during May. 2019 to Sept.2020.
- Experienced with music composing and production. 20+ public performances of composed pieces.
- Organized an online performance of 11 orchestras. Media coverage: [Xinhua News](#), [People's Daily](#), etc.

Other Papers

Accepted and published

- [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*. [[ArXiv](#)]
- [10] Fan Liu, Delong Chen*, et al. Let AI Perform Better Next Time — A Systematic Review of Medical Imaging-based Automated Diagnosis of COVID-19: 2020-2022. *Applied Sciences (SCI)*, 2022. 12, no. 8: 3895. [[paper](#)]
- [11] Fan Liu, Junfeng Wang, Delong Chen, et al. Asymmetric Exponential Loss Function for Crack Segmentation. *Multimedia Systems (SCI)*, 2022. [[paper](#)]
- [12] Zhibin Chen, Fan Liu, Delong Chen, et al. Weakly Correlated Adversarial Learning for Cognitive Diagnosis System. *2021 IEEE International Conference on Multimedia & Expo, ICME'21, Demo Track*.

Under review

- [13] Fan Liu, Delong Chen, et al. Deep Learning based Single Sample Face Recognition: A Survey. *Artificial Intelligence Review, AIRE (SCI, IF=8.139)* submission, under review (minor revision submitted).
- [14] 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, EAAI (SCI, IF=6.212)* submission, under review (major revision submitted).

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个人网站: chendelong.world
邮箱: chendelong@hhu.edu.cn

背景

计算机科学与技术专业学士学位	河海大学	2017.09 - 2021.06
优秀本科毕业设计, 优秀本科毕业生 (GPA: 83/100)		南京
科研助理	河海大学	2021.06 - 至今
研究领域: 多模态学习、水文预报		南京
算法实习生	旷视研究院	2021.10 - 至今
研究领域: 视觉-语言预训练		北京
暑期项目	不列颠与哥伦比亚大学	2018.07 - 2018.08
自然语言处理: 语言学方向与计算学方向 (Score: 85/100, 97/100)		加拿大, 温哥华

科研经历

视觉与语言

- 提出 ProtoCLIP[1]以提升 CLIP 预训练过程中表征聚簇 (representation grouping) 效率以及对模态鸿沟 (modality gap) 的鲁棒性, 在线性评估与零样本分类任务上分别提升 5.8%与 2.0%的准确率.
- 构建了面向多模态学习、细粒度分类、层次分类、长尾分布学习任务的大规模电商商品数据集 MEP-3M[2], 获评 LTDL@IJCAI'21 Best Dataset Paper.
- 将 MEP-3M 拓展至零样本商品识别、商品检索、图像分类, 以及面向自动零售场景的目标检测器预训练[3].

- [1] [Delong Chen](#), Zhao Wu, Fan Liu, et al. Prototypical Contrastive Language Image Pretraining. *NeurIPS 2022 submission*. [[paper](#)][[code](#)]
- [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*. (Best Dataset Paper) [[paper](#)][[dataset](#)]
- [3] Fan Liu, [Delong Chen](#), et al. MEP-3M: A Large-scale Multi-modal E-Commerce Products Dataset. *Pattern Recognition submission*.

Music and motion

- 构建了包含 100 小时音频动作数据的 *ConductingMotion100* 数据集, 为同类数据集中规模最大, 被江苏省计算机学会主办的“[远见杯](#)”挑战赛所采用.
- 将生成式与判别式自监督学习融合至统一框架, 的提出首个基于深度学习的音乐驱动的指挥动作生成算法M²S-GAN [4].
- 基于M²S-GAN, 三维建模与姿态迁移技术, 开发 *VirtualConductor* 演示系统, 获评 ICME'21 Best Demo [5]、河海大学优秀本科毕业设计[6].

- [4] Fan Liu, [Delong Chen](#)*, et al. Self-Supervised Music Motion Synchronization Learning for Music-Driven Conducting Motion Generation. In *Journal of Computer Science and Technology, JCST*, (SCI, CCF-B) 2021. 37, 539–558. [[paper](#)][[code](#)][[video](#)]
- [5] [Delong Chen](#), Fan Liu, et al. VirtualConductor: Music-driven Conducting Video Generation System. 2021 *IEEE International Conference on Multimedia & Expo, ICME'21, Demo Track*. (Best Demo) [[video](#)]
- [6] 《基于动态频域分解与跨模态感知的乐队指挥动作生成系统》. 河海大学优秀本科毕业设计, 推选江苏省优秀本科毕业设计.

水文预报

- 构架洪水预报 codebase *HHForecasting*，实现 12 种机器学习与深度学习基线模型。
 - 将毕设中动态频域分解算法迁移至水文预报，提出基于小波频域分解的海浪有效波高预报方法[7]。
 - 验证基于对抗域自适应的洪水预报方法，构建首个无监督洪水预报基线模型[8]。
- [7] [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. (Best Presentation)* [[ArXiv](#)]
- [8] [Delong Chen](#), Ruizhi Zhou, Yanling Pan, Fan Liu. A Simple Baseline for Adversarial Domain Adaptation-based Unsupervised Flood Forecasting. *Technical Report*, 2022. [[ArXiv](#)]

其它项目

- 实现基于 Gabor 小波与 CNN 的瑕疵定位与识别系统，获第八届“中国软件杯”华东赛区决赛三等奖（团队负责人），获 1 项软件著作权授权（第一作者）。
- 基于汇编语言实现包含两个非线性层的可训练神经网络，作为“微型计算机原理与实践”课程作业。
- 主持国家级大学生创新创业训练计划项目“基于跨年龄人脸识别的失踪人口匹配系统”。

荣誉与奖项

学术奖项

- 河海大学 2021 届本科优秀毕业设计。
- Best Dataset Paper Award in *Long-Tailed Distribution Learning Workshop, IJCAI 2021*.
- Best Demo Award in *IEEE International Conference on Multimedia and Expo (ICME) 2021*.
- Best Presentation Award in *International Conference on Big Data and Artificial Intelligence (BDAI) 2021*.

荣誉

- 河海大学 2021 届本科“优秀毕业生”荣誉称号。
- “江苏省优秀共青团员”称号。
- “2019 江苏省大学生年度人物”提名奖。
- 2020 年河海大学“海韵风华大学生年度人物”称号。
- 推选为中华全国学生联合会第二十七次代表大会（全国学联二十七次）代表。

竞赛奖项

- 第八届“中国软件杯”华东赛区决赛三等奖（团队负责人）。

专业技能

- 雅思英语考试: 7.0
- 掌握 Python、Pytorch 框架

音乐背景

- 获中央音乐学院小提琴演奏文凭级证书。
- 于 2019.05-2020.09 担任河海大学管弦乐团团长。
- 有作曲（Sibelius）、编曲（Cubase）经验，作曲作品公开演出 20+次。
- 策划组织 11 所高校云合奏《汉阳门花园》，完成作曲、混音、视频制作。媒体报道：[新华社](#)、[人民日报](#)等。

其它论文

已发表或已接收的论文

- [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*. [[ArXiv](#)]
- [10] Fan Liu, Delong Chen*, et al. Let AI Perform Better Next Time — A Systematic Review of Medical Imaging-based Automated Diagnosis of COVID-19: 2020-2022. *Applied Sciences (SCI)*, 2022. 12, no. 8: 3895. [[paper](#)]
- [11] Fan Liu, Junfeng Wang, Delong Chen, et al. Asymmetric Exponential Loss Function for Crack Segmentation. *Multimedia Systems (SCI)*, 2022. [[paper](#)]
- [12] Zhibin Chen, Fan Liu, Delong Chen, et al. Weakly Correlated Adversarial Learning for Cognitive Diagnosis System. *2021 IEEE International Conference on Multimedia & Expo, ICME'21, Demo Track*.

投稿在审的论文

- [13] Fan Liu, Delong Chen, et al. Deep Learning based Single Sample Face Recognition: A Survey. *Artificial Intelligence Review, AIRE (SCI, IF=8.139)* submission, under review (minor revision submitted).
- [14] 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, EAAI (SCI, IF=6.212)* submission, under review (major revision submitted).