

Jia-Hong (HENRY) LEE

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EDUCATION

National Taiwan University of Science and Technology (NTUST), Taiwan
M.S Biomedical Engineering | GPA: 3.79/4.0

Dec. 2016

- Thesis: Real Time Computer Vision Action Recognition System using Hierarchical Machine Learning Models for Facial Makeups Behavior Analysis

National Taiwan University of Science and Technology (NTUST), Taiwan

Jun. 2014

B.S. Major in Computer Science and Information Engineering, Minor in Biomedical Engineering | GPA: 4.0/4.0

RESEARCH & WORK EXPERIENCE

NTU AI Center, National Taiwan University

Jan. 2021 – Feb. 2021

Research Fellow, Project Instructor: Prof. Chu-Song Chen

Institute of Information Science, Academia Sinica

Jan. 2017 – Dec. 2020

Research Assistant, Project Instructor: Prof. Chu-Song Chen

- Developed merging technique of deep CNN models, which makes one compact CNN model handle multiple tasks. The result was published on APSIPA ASC 2020.
- Developed multiple stage pruning technique of deep learning, which makes MobileNet model more lightweight. The result was published on IJCNN 2020.
- Developed novel training strategy (PAE) of deep learning, which makes deep CNN model learn new tasks without catastrophic forgetting and applied this technique for multiple facial-informatics tasks. The result was published on ICMR 2019.
- Built NeuralMerger, a novel technique of co-compressing and unifying deep CNN models, which was used for merging multiple classification models and cross modal models, such as face and speaker recognition. The results were published on IJCAI 2018, CVPR workshop 2018 and 2019.
- Developed the technique of data-specific adaptive threshold for face recognition and published the result on MIPR 2019
- Implemented a lightweight CNN model for age and gender recognition (LMTCNN), which has few parameters and efficient inference on mobile device and published the result on MIPR 2018.

NTUST Center of Computer Vision and Medical Imaging

Dec. 2014 – Dec. 2016

Research and Teaching Assistant, Project Instructor: Prof. Ching-Wei Wang

- Developed novel technique of automatic biomedical image segmentation for Dental X-ray images, Brain MRI images and Gland Histology images using multiple random forest models and 3D registration. Its results were published on journal of medical image analysis and BrainLes workshop 2015 and also utilize it to attend the challenges in ISBI and MICCAI 2015.
- Developed novel technique of Microscopy Image Stitching and utilize it to attend the Stitching challenge which was hold in BioImage Informatics Conference 2015.
- Assisted in developing ensemble technique of the three neuron tracking algorithms for 3D neuron reconstruction.
- Assisted in modifying the 3D registration algorithm for serial-section microscopic images.

Innovative R&D Center, ATEN International Co., Ltd.

Jul. 2014 – Sep. 2014

Research Development Engineering Intern

- Researched and surveyed novel techniques of voice signal processing.
- Researched and surveyed novel products of healthcare.

PROJECTS

NTU AI Center, National Taiwan University

Jan. 2021 – Feb. 2021

Institute of Information Science, Academia Sinica

Jan. 2017 – Dec. 2020

- Developed deep learning toolkit for 2D and 3D human pose estimation and tracking in multiple IP cameras with RTSP using OpenCV, Pytorch and Tensorflow. <NADI SYSTEM CORP.>
- Developed deep learning toolkit for object detection, clothes detection, face detection and face recognition using Pytorch and Tensorflow and utilized this toolkit by single IP camera through RTSP using OpenCV. <NADI SYSTEM CORP.>
- Designed face identification and verification App using Tensorflow, Mxnet. This APP can be utilized on Android system device.
- Built age and gender estimation App using Tensorflow and can be utilized on Android system device.
- Constructed medical image segmentation system for nasopharyngeal carcinoma detection using Pytorch which is utilized by Koo Foundation Sun Yat-Sen Cancer Center and Varian Research.

NTUST Center of Computer Vision and Medical Imaging

Dec. 2014 – Dec. 2016

- Developed automatic biomedical image segmentation system for Dental X-ray images, Brain MRI images and Gland Histology images using Fiji, Weka, Dlib and Caffe. It was utilized by AIExplore company.
- Implemented action recognition system for behavior analysis using Weka and designed the APP on Android system device. The system and APP were used by AIExplore and HiMirror companies.

Innovative R&D Center, ATEN International Co., Ltd.

Jul. 2014 – Sep. 2014

- Android App development for electronic telephone switching system

Participated in Plans

NTU AI Center, National Taiwan University	Jan. 2021 – Feb. 2021
Institute of Information Science, Academia Sinica	Jan. 2017 – Dec. 2020
<ul style="list-style-type: none">Technical Leader and Developer, Technology Development Plan, NADI SYSTEM CORPTechnical Leader and Developer, Investigator-initiated Research Grants, Varian Medical SystemTechnical Co-Leader and Co-Developer, National Indicative AI Research Plan, Ministry of Science and TechnologyTechnical Co-Leader and Developer, AI & Deep Learning Research Plan, Ministry of Science and Technology	
NTUST Center of Computer Vision and Medical Imaging	Dec. 2014 – Dec. 2016
<ul style="list-style-type: none">Technical Co-Leader and Co-Developer, Technology Development Plan, HiMirror Company	

CERTIFICATE & ACTIVITY

Speaker in GDG Taiwan DevFest, Google	2020
Reviewer in Journal of Machine Vision and Applications, Springer	2020
Reviewer in Journal of Pattern Recognition, ELSEVIER	2019
Reviewer in Journal of Information Science and Engineering, Institute of Information Science, Academia Sinica	2019
CUDA C Program Designer Certificate, GREAT ELECTRICAL INTERNATIONAL CO., LTD	Aug. 2015

AWARDS & HONORS

Awards

National AI Conference, Ministry of Science and Technology, Taiwan, Award for The Most Potential	2020
National AI Conference, Ministry of Science and Technology, Taiwan, Best Presentation Award	2019
Academic Excellence Award, National Taiwan University of Science and Technology	Oct. 2011

Challenge or Contest's Awards

Big Data Analysis in Smart Manufacturing Competition (IMBD), Ministry of Education, Taiwan, First Place in Project A	Sep. 2019
Merchandise Detection Contest (IDEAS SHOW x AI), Ministry of Economic Affairs, Taiwan, Business Award	Sep. 2019
Gland Segmentation Challenge Contest, MICCAI 2015, Ninth Place /106	Oct. 2015
ISLES: Ischemic Stroke Lesion Segmentation Challenge 2015, MICCAI 2015, Selected	Oct. 2015
A Grand Challenge for Computer-automated Detection of Caries in Bitewing Radiography, ISBI 2015, Second Place	April. 2015

SKILLS

- Programming Languages:** Python, Java, C/C++, SQL, Latex, MATLAB
- Frameworks:** Fiji, Weka, Caffe, OpenCV, Tensorflow, Pytorch, Pydicom, SQLite, MySQL, Android SDK/NDK, Scikit-learn
- IDE Tools:** Xcode, Visual Studio, MATLAB
- Systems:** Unix, Windows, Android, Linux
- Language:** Chinese, English

PUBLICATIONS

Journals

- [1] Maier et.al. ISLES 2015-A public evaluation benchmark for ischemic stroke lesion segmentation from multispectral MRI. *Medical Image Analysis*, 2017. [\[link\]](#)
- [2] C.-W. Wang, C.-T. Huang, **J.-H. Lee** et al. A benchmark for comparison of dental radiography analysis algorithms. *Medical Image Analysis*, 2016. [\[link\]](#)

Proceedings

- [1] C.-E Wu, **J.-H. Lee**, Timmy S.-T Wan, Y.-M. Chan, C.-S. Chen. Merging Well-Trained Deep CNN Models for Efficient Inference. *APSIPA ASC*, 2020. [\[link\]](#)
- [2] C.-H Tu, **J.-H. Lee**, Y.-M. Chan, C.-S. Chen. Pruning Depthwise Separable Convolutions for MobileNet Compression. *IEEE IJCNN*, 2020. [\[link\]](#)
- [3] Steven C.-Y Hung, **J.-H. Lee**, Timmy S.-T Wan, C.-H Chen, Y.-M. Chan, C.-S. Chen. Increasingly Packing Multiple Facial-Informatics Modules in A Unified Deep-Learning Model via Lifelong Learning. *ACM ICMR*, 2019. [\[link\]](#)
- [4] Timmy S.-T Wan, **J.-H. Lee**, Y.-M. Chan, C.-S. Chen. Co-Compressing and Unifying Deep CNN Models for Efficient Human Face and Speaker Recognition. *IEEE CVPR Workshops*, 2019. [\[link\]](#)
- [5] H.-R. Chou, **J.-H. Lee**, Y.-M. Chan, C.-S. Chen. Data-specific Adaptive Threshold for Face Recognition and Authentication. *IEEE MIPR*, 2019. [\[link\]](#)
- [6] Y.-M. Chou, Y.-M. Chan, **J.-H. Lee**, C.-Y. Chiu, C.-S. Chen. Unifying and merging well-trained deep neural networks for inference stage. *ACM IJCAI*, 2018. [\[link\]](#)
- [7] Y.-M. Chou, Y.-M. Chan, **J.-H. Lee**, C.-Y. Chiu, C.-S. Chen. Merging Deep Neural Networks for Mobile Devices. *IEEE CVPR Workshops*, 2018. [\[link\]](#)
- [8] **J.-H. Lee**, Y.-M. Chan, T.-Y. Chen, C.-S. Chen. Joint Estimation of Age and Gender from Unconstrained Face Images using Lightweight Multi-task CNN for Mobile Applications. *IEEE MIPR*, 2018. [\[link\]](#)
- [9] C.-W. Wang, **J.-H. Lee**. Stroke lesion segmentation of 3D brain MRI using multiple random forests and 3D registration. *BrainLes*, 2015. [\[link\]](#)