Jia-Hong (HENRY) LEE

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EDUCATION

National Taiwan University of Science and Technology (NTUST), Taiwan Dec. 2016
M.S Biomedical Engineering | GPA: 3.79/4.0

- 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 EXPERIENCE

Image & Vision Computing Lab, Institute of Information Science, Academia Sinica Jan. 2017 – Current
Research Assistant, Project Instructor: Prof. Chu-Song Chen

- 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.

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] 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]

[2] 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]

[3] 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]

[4] 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]

[5] 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]

[6] **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]

[7] C.-W. Wang, **J.-H. Lee**. Stroke lesion segmentation of 3D brain MRI using multiple random forests and 3D registration. *BrainLes, 2015*. [link]

RESEARCH INTERESTS

- Research the technique of Deep Learning and Machine Learning to applied in the field of Biomedical Image Analysis, Biomedical-informatics Data, Computer Vision and Signal processing.
- Research the multi-task learning and continual lifelong learning of deep learning and machine learning.
- Research the technique of compressing and lightweight the deep learning and machine learning models.
- Research the technique of deep reinforcement learning.

AWARDS and HONORS

Academic Awards

- 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

Scholarship

- Graduate Student Scholarship, NTUST Center of Computer Vision and Medical Imaging, Taiwan — Dec. 2014 – Dec. 2016
- College Student Research Scholarship, National Science Council, Taiwan — May. 2013 – May. 2014
- College Student Scholarship, Armed Forces Reserve Command, MND, Taiwan — Jun. 2010 – Jun. 2014
- College Student Scholarship, Farmers Association, Taiwan — Jun. 2010 – Jun. 2014

CERTIFICATE

- 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, National Taiwan University — Aug. 2015

PROJECTS

Image & Vision Computing Lab, Institute of Information Science, Academia Sinica — Jan. 2017 – Current

- Developed deep learning toolkit for object detection, clothes detection, face detection and face recognition using Pytorch and Tensorflow which is utilized by 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.

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

SKILLS

- **Programming Languages:** C/C++, C#, Java, Python, MATLAB, Javascript
- **Frameworks:** Fiji, Imagej, Weka, Caffe, Caffe2, OpenCV, Mxnet, Tensorflow, Pytorch, Ionic, Cuda, OpenCL, ITK, VTK, Scipy, Matplotlib, Numpy, NiBabel, Scikit-learn, Scikit-image, Django, Dlib
- **IDE Tools:** Xcode, Visual Studio, Unity3D, MATLAB
- **Systems:** Unix, Windows, Android, Linux
- **Language:** Chinese, English