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PH.D. STUDENT AT UESTC · DOCTORAL ASSISTANT AT EPFL

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Education

École polytechnique fédérale de Lausanne (EPFL)   *Lausanne, Vaud, Switzerland*

GUEST PH.D. STUDENT IN BIOMEDICAL ENGINEERING. SUPERVISOR: ROLF GRUETTER & LIJING XIN   *Feb. 2021 - Present*

- Worked as a guest Ph.D. student at Laboratory of Functional and Metabolic Imaging, EPFL.
- Worked as a doctoral assistant of Animal Imaging and Technology at Center for Biomedical Imaging, EPFL.

University of Electronic Science and Technology of China (UESTC)   *Chengdu, Sichuan, P.R.China*

PH.D. STUDENT IN COMPUTER SCIENCE. SUPERVISOR: LEITING CHEN   *Sep. 2018 - Present*

- Worked at Key Laboratory of Digital Media Technology of Sichuan Province.

University of Electronic Science and Technology of China (UESTC)   *Chengdu, Sichuan, P.R.China*

MASTER STAGE FOR PH.D. IN COMPUTER SCIENCE. SUPERVISOR: LEITING CHEN   *Sep. 2016 - July. 2018*

- Recommended to Study as a Graduate Student without Admission Exam.
- Worked at Key Laboratory of Digital Media Technology of Sichuan Province.

Northwestern Polytechnical University (NWPU)   *Xi'an, Shaanxi, P.R.China*

B.ENG. IN SOFTWARE ENGINEERING   *Sep. 2012 - July. 2016*

- Awarded the NWPU Outstanding Undergraduate Graduate Award, which is given to promising students at NWPU.
- Ranked 9th out of 223 graduates in a four-year program.
- Got two first-class undergraduate scholarships in 2013 and 2014, which is given to top 10% students in the department.

Research Interests

Medical Image Analysis   Pathology Stratification, Lesion Segmentation, Representation Learning
Psychiatric Disorder   sMRI/fMRI Analysis, Automatic Diagnosis of Schizophrenia and Bipolar Disorder
Deep Learning   Semantic Segmentation, Report Generation, Transfer Learning

Activities

Lanternfish Co., Ltd   *Hong Kong, P. R. China*

INTERN DEEP LEARNING ENGINEER: PATENT TEXT MINING   *Aug. 2018*

- Participated in the Implementation of Large-Scale Multilingual Patent Retrieval System, Served More than 100 Customers.
- Developed an Online Patent Retrieval Workflow, Achieved Accuracy of 90% and Response in 100ms.
- Launched an Innovative Siamese Network for Text Similarity Evaluation,Integrated Both Semantic and Phrases Characteristics.

PICSL Lab, University of Pennsylvania   *PA, USA*

VISITING SCHOLAR   *Aug. 2017 - Sep. 2017*

- Led a Group Study of Registration for Brain MRI Image with Ph.D. Candidates in Lab.
- Attended a Seminar of Dynamic Reconstruction and Enhancement of Heart MRI Image.
- Attended a Seminar of Clinical Data Management and Risk Control.

School of Computer Science, Universidad Politecnica de Valencia   *Valencia, Spain*

EXCHANGED STUDENT   *Sep. 2015 - Mar. 2016*

Research Projects

Automatic Diagnosis of Psychiatric Disorder   *Lausanne, Vaud, Switzerland*

ASSISTANT RESEARCHER, ASSOCIATE WITH LAUSANNE UNIVERSITY HOSPITAL (CHUV)   *Feb. 2021 - Present (Est. end on Feb.2023)*

- Designed a Deep Learning-based Processing Pipeline for Multimodal MRI Data.
- Exploring the Feasibility of Deep Learning Model on Detecting Early-Stage Psychiatric Disorders.
- Researched on Biomarkers for Psychiatric Disorders Diagnosis.

Clinical Ophthalmology AI Application with Fundoscopic Images
Chengdu, Sichuan, P. R. China

Principal Investigator, associate with Sichuan Provincial People's Hospital — *Jan. 2019 - May. 2020*

- Designed a Weakly Supervised Method for Optic Disc Segmentation, Achieved Jaccard of 90% on Average.
- Established a Deep Hierarchical Lesion-Aware Network for Fundus Diseases Classification (*e.g.*, Glaucoma, Diabetic Retinopathy).
- Researched on Report Generation for Fundoscopic Image, Solving Issue of Domain Shift.

Automatic Methods for Transcatheter Aortic Valve Replacement (TAVR)
Dongguan, Guangdong, P. R. China

Principal Investigator, associate with Dongguan People's Hospital — *Nov. 2018 - May. 2020*

- Implemented a Recurrent Residual ConvNets for Segmentation of Aortic Valve Orifice.
- Analysed on Automatic Aortic Value Calcium Scoring Method for TAVR with Multi-domain Medical Images.
- Evaluated on Enhancement for Multi-domain Cardiovascular Images by GAN-based Super-Resolution Generation.

Medical Report Generation for Chest X-ray Scans and Fundoscopic Images
Chengdu, Sichuan, P. R. China

Principal Investigator — *Nov. 2018 - May. 2020*

- Improved Disease Abnormality Detection Accuracy for Chest X-ray and Fundoscopic Images.
- Gererated Human-Like Report for Both High Readability and Abnormality Sensitivity.
- Enhanced Capability of Neural Network for Distinguishment in Describing Disease and Normal Appearance.

Sample-Limited Pancreas Segmentation Based on CT/MRI Scans
Chengdu, Sichuan, P. R. China

Assistant Researcher — *Sep. 2018 - May. 2020*

- Created a Recurrent Residual ConvNets for Pancreas Segmentation in CT Scans, Achieved F1 Score of 81%.
- Introduced a Weakly Supervised Method for Solving Reliance on Pixel-level Annotation.
- Took Both Sequential and Local Information into Account for Smoothed Segmentation.

Publications

Medical Image Analysis

1. **Yang Wen**, Leiting Chen, Yu Deng, Chuan Zhou. **Rethinking Pre-training on Medical Imaging**. *Journal of Visual Communication and Image Rrepresentation, 78, 103145*, 2021.

2. **Yang Wen**, Leiting Chen, Lifeng Qiao, Haisheng Chen, Yu Deng, Chuan Zhou. **Let's Find Fluorescein: Cross-Modal Dual Attention Learning For Fluorescein Leakage Segmentation In Fundus Fluorescein Angiography**. *2021 IEEE International Conference on Multimedia and Expo (ICME)*, 2021.

3. **Yang Wen**, Leiting Chen, Haisheng Chen, Ximan Tang, Yu Deng, Yongbiao Chen, Chuan Zhou. **Non-Local Attention Learning for Medical Image Classification**. *2021 IEEE International Conference on Multimedia and Expo (ICME)*, 2021.

4. **Yang Wen**, Leiting Chen, Shuo Xi, Yu Deng, Ximan Tang, Chuan Zhou. **Towards Efficient Medical Image Segmentation Via Boundary-Guided Knowledge Distillation**. *2021 IEEE International Conference on Multimedia and Expo (ICME)*, 2021.

5. **Yang Wen**, Leiting Chen, Lifing Qiao, Chuan Zhou, Shuo Xi, Rui Guo, Yu Deng. **An efficient weakly-supervised learning method for optic disc segmentation**. *2020 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*, 2020.

6. **Yang Wen**, Leiting Chen, Lifing Qiao, Yu Deng, Siying Dai, Junjing Chen, Chuan Zhou. **Symptom and Pathology Report Generation for Ophthalmic Diseases in Fundus Images**. *2020 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*, 2020.

7. **Yang Wen**, Leiting Chen, Chuan Zhou, Yu Deng, Huiru Zeng, Shuo Xi, Rui Guo. **On the Effective Transfer Learning Strategy for Medical Image Analysis in Deep Learning**. *2020 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*, 2020.

8. **Yang Wen**, Leiting Chen, Lifeng Qiao, Yu Deng, Chuan Zhou. **On the Deep Learning-based Age Prediction of Color Fundus Images and Correlation with Ophthalmic Diseases**. *2020 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*, 2020.

9. **Yang Wen**, Leiting Chen, Lifeng Qiao, Yu Deng, Siying Dai, Junjing Chen, Chuan Zhou. **On Automatic Detection of Central Serous Chorioretinopathy and Central Exudative Chorioretinopathy in Fundus Images**. *2020 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*, 2020.

10. Chuan Zhou, Tian Zhang, **Yang Wen**, Leiting Chen, Lei Zhang, Junjing Chen. **Cross-Modal Guidance for Hyperfluorescence Segmentation in Fundus Fluorescein Angiography**. *2021 IEEE International Conference on Multimedia and Expo (ICME)*, 2021

11. Siying Dai, Leiting Chen, Ting Lei, Chuan Zhou, **Yang Wen**. **Automatic detection of pathological myopia and high myopia on fundus images**. *2020 IEEE International Conference on Multimedia and Expo (ICME)*, 2020

12. Chuan Zhou, Yuchu Chen, Minghao Fan, **Yang Wen**, Hang Chen, Leiting Chen. **Enhancing Tiny Tissues Segmentation via Self-Distillation**. *2020 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*, 2020

13. Chuan Zhou, Tian Zhang, Leiting Chen, **Yang Wen**, Ting Lei, Junjing Chen. **Attention Based Detection for Central Serious Chorioretinopathy in Fundus Image**. *2020 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*, 2020

14. Huiru Zeng, Xiaohua Hu, Leiting Chen, Chuan Zhou, **Yang Wen**. **Weakly Supervised Learning of Recurrent Residual ConvNets for Pancreas Segmentation in CT Scans**. *2019 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*, 2019

* **Yang Wen**, Leiting Chen, Yu Deng, Chuan Zhou. **Towards Better Semantic XXX of 2D Medical Image Segmentation**. *Under Review*.

* **Yang Wen**, Leiting Chen, Yu Deng, Chuan Zhou. **XXX Property of Transfer Learning Based on Natural and Medical Images**. *Under Review*.

* **Yang Wen**, Leiting Chen, Yu Deng, Zhong Zhang, Chuan Zhou. **XXX-Wise Triplet Learning for Enhancing XXX in Medical Image Segmentation**. *Under Review*.

1. Zhongquan Gao, Yu Deng, **Yang Wen**, Jueran Lu, Zenghui Du, Chenglong Tang, Eiji Tomita, Yonghua Tan. **Deep-learning based in-cylinder pressure modeling and resolution of ion current signals**. *Fuel, 282, 118722*, 2020

2. Yu Deng, Zhongquan Gao, Songhua Xu, Pengyu Ren, **Yang Wen**, Ying Mao, Zongfang Li. **ST-Net: Synthetic ECG tracings for diagnosing various cardiovascular diseases**. *Biomedical Signal Processing and Control, 61, 101997*, 2020

3. Yu Deng, Zhongquan Gao, Eiji Tomita, **Yang Wen**. **An image understanding based model with ion current signals for predicting combustion information**. *Fuel, 253, 1080-1089*, 2019

4. Jin Ning, Leiting Chen, Chuan Zhou, **Yang Wen**. **Parameter k search strategy in outlier detection**. *Pattern Recognition Letters, 112, 56-62*, 2018

5. **Yang Wen**, An Xu, Wei Liu, Leiting Chen. **A Wide Residual Network for Sentiment Classification**. *2018 2nd International Conference on Deep Learning Technologies (ICDLT)*, 2018.

6. Shirong Shen*, **Yang Wen***, Lijuan Zhou, Hongyin Zan. **Customized Attention Mechanism for Relation Classification**. *32nd Pacific Asia Conference on Language, Information and Computation (PACLIC)*, 2018.

Honors & Awards

2020	**Chinese Government Scholarship**, Awarded from China Scholarship Council	*Beijing, P. R. China*
2017	**First Prize Graduate Scholarship for Master Student**, Awarded from UESTC (Top 10%)	*UESTC, P. R. China*
2016	**First Prize Graduate Scholarship for Master Student**, Awarded from UESTC (Top 10%)	*UESTC, P. R. China*
2016	**Outstanding undergraduate Graduates**, Awarded from NWPU (Top 5%)	*NWPU, P. R. China*
2014	**Chinese Government Scholarship**, Awarded from China Scholarship Council	*Beijing, P. R. China*
2014	**First Prize Graduate Scholarship for Bachelor Sstudent**, Awarded from NWPU (Top 10%)	*NWPU, P. R. China*
2013	**First Prize Graduate Scholarship for Bachelor Student**, Awarded from NWPU (Top 10%)	*NWPU, P. R. China*

Skills

Programming	Python, LaTeX, Java, Swift, HTML
Tools	Pytorch, Linux, Git, CAT12, SPM8, scikit-learn, Numpy, Pandas, Simple-ITK
Languages	Chinese (Native Language), Cantonese (Native Language), English (IELTS 7.0, PETS 5, CET 4/6)