

Xinyue Feng

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EDUCATION

Nanjing University

Nanjing, China

M.S. in Statistics

2019 – 2022 (Expected)

GPA: 3.86/4.0 (Ranking: 1st/15)

Sun Yat-sen University

Guangzhou, China

B.S. in Statistics

2015 – 2019

GPA: 3.75/4.0

Courses: *Multivariate Statistical Analysis (97/100), Stochastic Processes (98/100), Data Structures and Algorithm in C++ (96/100), Digital Image Processing (94/100), etc.*

RESEARCH INTERESTS

Computer Vision, Medical Image Analysis, Statistical Machine Learning

PATENTS

Xinyue Feng, Wujun Li, Song Zhou. **Building surface crack detection method based on image processing.** Patent No.201911371906. 2020

Xinyue Feng, Wujun Li, Song Zhou. **Image-based bridge crack detection method.** Patent No.201911371902. 2020

RESEARCH EXPERIENCE

A Hierarchical Unsupervised Framework for Hand-drawn Diagrams Recognition

Microsoft Research Asia

Sep.2021– Mar.2022

Advisors: Dr. Hao Wang and Dr. Yun Wang

Proposed Method: *A hierarchical Bayesian deep learning model for interpretable fine-grained detection and transformation from unstructured sketches to structured diagrams without human annotation.*

Contribution:

- *The first unsupervised method for hand-drawn diagrams recognition.*
- *Results verify that our method significantly improves upon the state of the art.*

Robust Hashing Learning in Image Retrieval via Random Smoothing

LAMDA Group, the Department of Computer Science and Technology

Oct.2020 – June.2021

Advisors: Prof. Wujun Li

Proposed Method: *We propose a certified defense method in image retrieval called Smoothing Hashing (SH). It builds a robust hashing model towards adversarial perturbations by adding Gaussian noise, and it is supported theoretically by Neyman-Pearson Lemma.*

Contribution:

- *The first defense method for hashing-based retrieval model.*
- *Significantly improve the robust accuracy: MNIST(+64.2%), CIFAR10(+81.4%), NUSWIDE(+62.6%).*

- *It is supported theoretically.*

A Noise-Robust Method for Crack Segmentation**LAMDA Group, the Department of Computer Science and Technology****Oct. 2019–****Jan.2020****Advisors:** Prof. Wujun Li

Proposed Method: *We propose a noise-robust crack segmentation method consisting of two steps: Multi-direction Non-minimum Suppression and pixel expansion-based crack connection.*

Contribution:

- *More robust to the noise than existing crack segmentation algorithms.*
- *Obtain more continuous cracks, which provides a good foundation for subsequent crack analysis.*

Segmentation of Pectoral Muscle in Mammograms (Best B.S. thesis)**Computational Medical Imaging Laboratory****Aug.2018 – Jun.2019****Advisors:** Prof. Yao Lu

Proposed Method: *We propose a novel pectoral muscle segmentation method combining the deep learning method and the traditional image processing method, so that the traditional algorithm can refine the results of the deep neural network.*

Contribution:

- *The first attempt to combine traditional techniques and deep learning methods in pectoral muscle segmentation.*
- *Achieves state-of-the-art performance: DDSM(+0.6%), MIAS(+1.4%), Inbreast(+0.8%), cases provided by three cooperative hospitals(+0.6%).*

COMPETITION

- 26/1681 (Top 2%). CVPR2021 Security AI Challenger **2021**
- First Prize (Top 1%), China Undergraduate Mathematical Contest in Modeling **2017**

HONORS AND AWARDS

- HUAWEI Fellowship, NJU **2020**
- First Prize (Top 5%), Excellent Student Scholarship, NJU **2019-2021**
- University-level Excellent Graduation Thesis, SYSU **2019**
- First Prize (Top 5%), Excellent Student Scholarship, SYSU **2016-2019**

SKILLS

- **Programming Language:** *Python, MATLAB, C/C++, R, SQL*
- **Tools:** *PyTorch, Tensorflow, OpenCV*