Yiming Xu

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Education

- **Institut Polytechnique de Paris** — Paris, France
  M1 - Data and Artificial Intelligence — *Sep 2020 - Present*
  Core Courses: *Navigation for autonomous systems, Learning for Robots, Machine and Deep Learning, Reinforcement Learning*

- **Henan University** — Henan, China
  BEng - Computer Science and Technology; GPA: 85.38% Core GPA: 89.21% — *Sep 2015 - Jul 2019*
  Core Courses: *Advanced Mathematics(94%), Probability & Mathematical Statistics(87%) , Mathematical Modeling(97%), Discrete Mathematics(93%), Basic Circuit and Electronics(88%), Operating System(86%), C++ Programming(92%)*
  BEng Thesis:*Cross-modal Information Retrieval Model Based on Hard Examples Fine-grained Label Learning(99%), Outstanding Graduate Thesis Award*

Publications

[1] Yiming Xu, Jing Yu, Yue Hu, Jingjing Guo, Jianlong Tan, "*Fine-Grained Label Learning via Siamese Network for Cross-modal Information Retrieval*," International Conference on Computational Science. Springer, Cham, 2019: 304-317.

[2] Xiaohui Yang, Zheng Wang, Huan Wu, Licheng Jiao, Yiming Xu, Haolin Chen. "*Stable and Compact Face Recognition via Unlabeled Data Driven Sparse Representation-Based Classification,*" Signal Processing: Image Communication (Under Review)

[3] Xiaohui Yang, Xiaoying Jiang, Wenming Wu, Juan Zhang, Dan Long, Funa Zhou, Yiming Xu, "*Low Rank variation Dictionary and Inverse Projection Group Sparse Representation Model for Breast Tumor Classification*," arXiv preprint arXiv:1803.04793 (2018).

Experience

- **MMLab-IIE, Chinese Academy of Sciences**
  Research Intern, Supervisor: Dr. Jing Yu , Yanbing Liu — *Aug 2018 - Feb 2020*
  - **Cross-modal Information Retrieval**: Design a siamese network to learn fine-grained labels for both the positive and negative examples to capture the degrees of hardness, thus enhancing cross-modal correlation learning. Introduced these labels to a rank-based pairwise similarity loss function. Achieved significant improvements on the retrieval performance by incorporating with fine-grained labels.
  - **Video Event Search**: Sampled frames from each video, every few seconds and generates natural language captions for each frame using DenseCap. Retrieved the caption that best matches the user's search query, along with the video and the precise timestamp, within the video associated with the caption.

- **Data Analysis Technology Lab. Henan University**
  Research Intern, Supervisor: Dr. Xiaohui Yang — *Dec 2017 - Jan 2018*
  - **Breast Tumor Classification**: Extract features from CT images of breast tumors, use deep learning for classification and compare with classic machine learning methods.
  - **Face Recognition**: Constructed Convolutional Neural Networks for the evaluation of Deep Learning methods for face recognition with occlusion.

Projects

- **Video Events Search**
  Institute for Information Engineering, Chinese Academy of Science — *Jul 2019 - Oct 2019*
  - Sampled frames from each video, every few seconds and generates natural language captions for each frame using DenseCap.
  - Indexed these captions as documents along with the corresponding video URL and timestamp.
  - Retrieved the caption that best matches the user's search query, along with the video and the precise timestamp, within the video associated with the caption.

- **Automatic Check-in System with Face Recognition**
  School of Mathematics and Statistics, Henan University — *Dec 2017 - Jan 2018*
  - Used Tensorflow trained Deep Neural Networks face classification in ROS.
  - Run the program in Raspberry Pi to achieve portability and flexibility.

- **Vision-Guided Navigation of Autonomous Cars with Deep learning**
  Department of Computer Science, Henan University — *Mar 2017 - Sep 2017*
  - Analysed and reconstructed of 3D environment from images captured by Kinect 2.
  - Implemented and compared some state-of-the-art SLAM methods.

Honors and Awards

- Outstanding graduate thesis Award, Henan University (1%) - Jul, 2019
- Excellent Graduation Interns, Henan University - Jul, 2019
- University Merit Award, Henan University - Aug, 2018
- Second Prize (Province-wide), Mathematical Contest in Modelling (MCM/ICM), USA - Apr, 2018
- Provincial Third Prize & University Outstanding Award, Internet+ Innovation Contest - Jul, 2017
- Provincial First Prize, China Undergraduate Contest in Mathematical Modelling - 2016
- Provincial Third Prize, Lan Qiao Cup Undergraduate Java Programming Contest - 2016

Skills Summary

- **Languages**: Python, C, C++, C#, MATLAB, JavaScript, SQL, PHP, JAVA
- **Frameworks**: Scikit-learn, NLTK, TensorFlow, Pytorch, Keras
- **Platforms**: Linux, Web, Windows, MacOS

Volunteer Experience

- **ML & DL Lead at Data Analysis Technology Lab. HENU** Kaifeng, China
  Conducted seminars for Deep Learning and Machine Learning Technology for freshman. *Dec 2017 - Jul 2018*