

NIE Xuecheng

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Education

- **National University of Singapore**, Singapore
 - **Ph.D.** in Electrical and Computer Engineering Department 2016.08-Present
Supervisor: Assis. Prof. FENG Jiashi and Assoc. Prof. YAN Shuicheng
- **Tianjin University**, Tianjin, China
 - **M.Eng.** in School of Computer Software 2012.09-2015.01
Supervisor: Prof. FENG Wei
 - **B.Eng.** in School of Computer Software 2008.09-2012.06

Research Interests

- Computer Vision, Deep Learning, Human Pose Estimation, Face Detection

Publications

- **Refereed Journal Papers**
 - [J2] **Xuecheng Nie**, Jiashi Feng, Junliang Xing, Shengtao Xiao, Shuicheng Yan, “Hierarchical Contextual Refinement Networks for Human Pose Estimation”, *IEEE Trans. on Image Processing (TIP)*, under review, submitted on 29 Nov. 2017.
 - [J1] Yan Zheng, **Xuecheng Nie**, Zhaopeng Meng, Wei Feng, and Kang Zhang, “Layered Modeling and Generation of Pollock's Drip Style”, *The Visual Computer*, vol. 31, no. 5, pp. 589-600, 2015.
- **Refereed Conference Papers**
 - [C9] **Xuecheng Nie**, Jiashi Feng, Yiming Zuo, Shuicheng Yan, “Human Pose Estimation with Parsing Induced Learner”, submitted to *IEEE Int. Conf. on Computer Vision and Pattern Recognition (CVPR)* 2018, under review.
 - [C8] **Xuecheng Nie**, Jiashi Feng, Junliang Xing, Shuicheng Yan, “Generative Partition Networks for Multi-Person Pose Estimation”, submitted to *IEEE Int. Conf. on Computer Vision and Pattern Recognition (CVPR)* 2018, under review.
 - [C7] Shengtao Xiao, Jiashi Feng, Luoqi Liu, **Xuecheng Nie**, Wei Wang, Ashraf A. Kassim, “Recurrent 3D-2D Dual Learning for Large-Pose Facial Landmark Detection”, in *IEEE Int. Conf. on Computer Vision (ICCV)* 2017.
 - [C6] Jian Zhao, Jianshu Li, **Xuecheng Nie**, Fang Zhao, Yunpeng Chen, Zhecan Wang, Jiashi Feng, Shuicheng Yan, “Self-Supervised Neural Aggregation Networks for Human Parsing”, in *IEEE Int. Conf. on Computer Vision and Pattern Recognition Workshops (CVPR Workshops)* 2017.
 - [C5] Shengtao Xiao, Luoqi Liu, **Xuecheng Nie**, Jiashi Feng, Ashraf A. Kassim, Shuicheng Yan, “A Live Face Swapper”, in *ACM Multimedia Conference (MM)* 2016.
 - [C4] **Xuecheng Nie**, Wei Feng, Liang Wan, Haipeng Dai, and Chi-Man Pun, “Intrinsic Image Decomposition by Hierarchical L0 Sparsity”, in *IEEE Int. Conf. on Multimedia and Expo (ICME)*, pp. 1-6, Jul. 2014.
 - [C3] Haipeng Dai, Wei Feng, Liang Wan, and **Xuecheng Nie**, “L0 Co-Intrinsic Image Decomposition”, in *IEEE Int. Conf. on Multimedia and Expo (ICME)*, pp. 1-6, Jul. 2014.
 - [C2] **Xuecheng Nie**, Wei Feng, Liang Wan, and Lei Xie, “Measuring Semantic Similarity by Contextual Word Connections in Chinese News Story Segmentation”, in *IEEE Int. Conf. on Acoustics, Speech and Signal Processing (ICASSP)*, pp. 8312-8316, May 2013.

[C1] Wei Feng, **Xuecheng Nie**, Liang Wan, Lei Xie, and Jianmin Jiang, “Lexical Story Co-Segmentation of Chinese Broadcast News”, in *13th Annual Conf. on the Int. Speech Communication Association (INTERSPEECH)*, pp. 2286-2289, Sep. 2012.

○ **Patents**

[P2] Wei Feng, **Xuecheng Nie**, Ang Yang, and Jianwu Dang, “A Data-Driven Method for Calculating Semantic Similarity of Chinese Words”, Publication No. CN103761225 A, Mar. 2017.

[P1] Wei Feng, Liang Wan, **Xuecheng Nie**, Xiaoni Gao, Jianwu Dang, “A Soft Semantic Similarity Measurement for Chinese News Story Segmentation”, Publication No. CN103793491 B, Jan. 2017.

Research Experience

- **Human Pose Estimation with Parsing Induced Learner** 2017.05-2017.11
Supervisor: Assis. Prof FENG Jiashi, National University of Singapore
 - Proposed a novel model for learning to adapt pose model by using parsing info
 - The proposed Parsing Induced Learner is transferable across datasets
 - Achieved new state-of-the-art on multiple benchmarks for human pose estimation
 - Written a refereed paper, which has been submitted to CVPR 2018 (under review)
- **Generative Partition Network for Multi-Person Pose Estimation** 2017.02-2017.09
Supervisor: Assis. Prof FENG Jiashi, National University of Singapore
 - Proposed a new one-pass solution to multi-person pose estimation
 - Proposed a novel dense regression module for efficient and robust joint partition
 - Achieved new state-of-the-art on multiple benchmarks
 - Written a refereed paper, which has been submitted to CVPR 2018 (under review)
- **Complexity-Aware CNN Model for Single-Person Pose Estimation** 2016.08-2016.12
Supervisor: Assis. Prof FENG Jiashi, National University of Singapore
 - Proposed a principled way to deal with heterogeneous complexities of body joints
 - Introduced a Contextual Refinement Unit for exploiting contextual information
 - Achieved superior performance and high efficiency
 - Written a refereed paper, which has been submitted to TIP (under review)
- **Realtime Face Detection for Mobile Devices (Intern)** 2016.02-2016.05
Supervisor: Assoc. Prof YAN Shuicheng, Qihoo 360 AI Institute
 - Implemented the Fast-RCNN based realtime face detector for mobile devices
 - Simplified CNN architecture for computation acceleration and model size reduction
 - Implemented the Cross- and X-Shape convolution for further acceleration
 - Successfully applied to both Android and IOS systems with speed of 20fps
- **Deep Neural Network for Face Analysis (Intern)** 2015.09-2015.12
Supervisor: Assoc. Prof. YAN Shuicheng, Qihoo 360 AI Institute
 - Improved face recognition accuracy on benchmark datasets
 - Implemented Cascade Convolutional Neural Network for face detection
 - Constructed and trained Siamese network for face verification
- **Weakly-Supervised Semantic Similarity (Research Assistant)** 2014.05-2014.08
Supervisor: Prof. LIU Zhi-Qiang, City University of Hong Kong
 - Implemented weakly-supervised semantic similarity measurement
 - Improved performance of story co-segmentation with soft semantic similarity
 - Written a refereed paper, which has been submitted to TASLP (under review)
- **Hierarchical L0 Sparsity for Intrinsic Image Decomposition** 2013.09-2014.12
Supervisor: Prof. FENG Wei, Tianjin University

- Constructed global correlations among pixels in images by L0 sparsity
- Implemented coarse-to-fine process to propagate correlations by hierarchical model
- Achieved superior performance on intrinsic image decomposition task
- Published a first-authored refereed paper in ICME 2014
- **Measuring Semantic Similarity for Chinese Words** 2012.06-2014.12
Supervisor: Prof. FENG Wei, Tianjin University
 - Constructed correlated affinity graph embedding semantic relationships
 - Implemented an iterative affinity propagation to generate semantic similarities
 - Extended cosine similarity to encode latent correlations between different words
 - Achieved 7%~10% F1-measure improvement on benchmark datasets
 - Published a first-authored refereed paper in ICASSP 2013
- **Story Co-Segmentation for Document Analysis** 2011.12-2012.09
Supervisor: Prof. FENG Wei, Tianjin University
 - Proposed the concept of story co-segmentation to extract stories of the same topics
 - Proposed a four-step iterative solution based on Markov Random Field
 - Designed a feasible criterion for common lexical cluster selection
 - Published a second-authored refereed paper in INTERSPEECH 2012

Work Experience

- **Intern at Qihoo 360 AI Institute** 2015.09-2016.05
- **Research Assistant at City University of Hong Kong** 2014.05-2014.08

Awards and Honors

- **1st place** in object localization tracks in ILSVRC 2017 2017.06
- **2nd place** in 1st LIP Challenges on Human Parsing and Pose Estimation 2017.05
- **Hong Kong Ph.D. Fellowship** 2016.03
- **Excellent Postgraduate** of Tianjin University (**Top 2%** / all TJU students) 2015.01
- **National Scholarship** for Graduate Students (**Top 1%** / all TJU students) 2014.12
- **Google Excellence Scholarship (Top 2)** / all TJU.SCS students 2013.06
- **Excellent Undergraduate** of Tianjin University (**Top 2%** / all TJU students) 2012.06
- **TEDA-Scope Scholarship (Top 5%)** / all TJU.SCS students 2012.06
- **First Prize** for SCS Innovation Fund (**Top 1** / all TJU.SCS students) 2011.06

Professional Activities

- **Teaching Assistant at National University of Singapore** 2017.01-Present
 - EE2024: Programming for Computer Interfaces

Skills

- **Programming Skills**
 - C/C++, Python, MATLAB, C#, and LaTeX
- **Deep Learning Frameworks**
 - Caffe and Pytorch
- **Tools**
 - Linux Shell, Vim, Visual Studio, and MATLAB