# Jinzhuo **Wang**

Ph.D. Candidate · Computer Science

(+86) 185-8904-8347 | 1301111266@pku.edu.cn | www.wangjinzhuo.com


## Education

### PKU (Peking University)

*Beijing, China*

Ph.D. in Electronics Engineering and Computer Science

*Sep. 2013 - Exp. Dec. 2018, GPA: 3.8/4.0*

- Thesis: Collaborative Deep Learning and its Applications to Video Analysis
- Supervisor: Professor Wen Gao and Wenmin Wang
- Description: This thesis presents a collaborative learning paradigm for bidirectional assistance of multiple agents and applies it to deep neural architectures, achieving a generic collaborative deep learning model. The proposed model demonstrates effectiveness on a variety of video analysis tasks, including video recognition, prediction and generation.

### PKU (Peking University)

*Beijing, China*

B.S. in Electronics Engineering and Computer Science

*Sep. 2009 - Jun. 2013, GPA: 3.5/4.0*

- Thesis: Static Board Analysis in Modern Computer Go
- Supervisor: Professor Yanchun Sun
- Description:This thesis presents a series of novel methods for static board analysis in computer Go. The key contribution is formulating the influence of territories and areas and providing solutions to calculate $mu$ for both. Based on static board analysis of current situation and next possible situations, one can achieve strategy for the next move.

## Publications

### Multi-Scale Deep Alternative Neural Network for Large Scale Video Classification

**Jinzhuo Wang**, Wenmin Wang and Wen Gao

IEEE Transactions on Multimedia (**TMM**), 2018

### Fast and Accurate Action Detection with Motion Density and Visual Attention

**Jinzhuo Wang**, Wenmin Wang and Wen Gao

IEEE Transactions on Circuits and Systems for Video Technology (**TCSVT**), 2018

### Predicting Diverse Future Frames with Transformation based Mask

**Jinzhuo Wang**, Wenmin Wang and Wen Gao

IEEE Transactions on Circuits and Systems for Video Technology (**TCSVT**), 2018

### Beyond Knowledge Distillation: Collaborative Learning for Bidirectional Model Assistance

**Jinzhuo Wang**, Wenmin Wang and Wen Gao

IEEE Access, 2018

### Beyond Monte Carlo Tree Search: Playing Go with Deep Alternative Neural Network and Long-Term Evaluation

**Jinzhuo Wang**, Wenmin Wang, Ronggang Wang and Wen Gao

AAAI Conference on Artificial Intelligence (**AAAI**), 2017

### Deep Alternative Neural Network: Exploring Contexts as Early as Possible for Action Recognition

**Jinzhuo Wang**, Wenmin Wang, Ronggang Wang, Xiongtao Chen and Wen Gao

Annual Conference on Neural Information Processing Systems (**NIPS**), 2016

### CSPS: An Adaptive Pooling Method for Image Classification

**Jinzhuo Wang**, Wenmin Wang, Ronggang Wang and Wen Gao

IEEE Transactions on Multimedia (**TMM**), 2016

### Learning Class-Specific Pooling Shapes for Image Classification

**Jinzhuo Wang**, Wenmin Wang, Ronggang Wang and Wen Gao

IEEE International Conference on Multimedia and Expo (**ICME**), 2015

### A Compact Shot Representation for Video Semantic Indexing

**Jinzhuo Wang**, Wenmin Wang, Ronggang Wang and Wen Gao

IEEE International Conference on Image Processing (**ICIP**), 2015

### Image Classification Using RBM to Encode Local Descriptors with Group Sparse Learning

**Jinzhuo Wang**, Wenmin Wang, Ronggang Wang and Wen Gao

IEEE International Conference on Image Processing (**ICIP**), 2015

### Learning Object-Centric Transformation for Video Prediction

Xiongtao Chen, Wenmin Wang, Weimian Li and **Jinzhuo Wang**

ACM Multimedia Conference (**MM**), 2017

### Imagination on Image: Synthesizing Videos with Transformation Generation

Baoyang Chen, Wenmin Wang and **Jinzhuo Wang**, Xiongtao Chen

ACM Multimedia Conference (**MM**), 2017

### Collaborative Networks for Person Verification

Yihao Zhang, Wenmin Wang, **Jinzhuo Wang**

ACM Multimedia Conference Workshop on Multimedia Verification (**MM Workshop**) , 2017.

### Aligned Local Descriptors and Hierarchical Global Features for Person Re-Identification

Yihao Zhang, Wenmin Wang, **Jinzhuo Wang**

Pacific Rim Conference on Multimedia (**PCM**) , 2017.

### Deep discriminative network with inception module for person re-identification

Yihao Zhang, Wenmin Wang, **Jinzhuo Wang**

IEEE Visual Communications and Image Processing (**VCIP**) , 2017.

### Better Deep Visual Attention with Reinforcement Learning in Action Recognition

Gang Wang, Wenmin Wang, **Jinzhuo Wang** and Yaohua Bo

IEEE International Symposium on Circuits and Systems (**ISCAS**), 2017.

### A Joint Model for Action Localization and Classification in Untrimmed Video with Visual Attention

Weimian Li, Wenmin Wang and **Jinzhuo Wang**

IEEE International Conference on Multimedia and Expo (**ICME**), 2017

### Long-Term Video Interpolation with Bidirectional Predictive Network

Xiongtao Chen, Wenmin Wang and **Jinzhuo Wang**, Weimian Li, Baoyang Chen

IEEE International Conference on Visual Communications and Image Processing (**VCIP**), 2017

### Attention-based Two-phase Model for Video Action Detection

Xiongtao Chen, Wenmin Wang, Weimian Li and **Jinzhuo Wang**

17th International Conference on Computer Analysis of Images and Patterns (**CAIP**), 2017

### Collaborative Deep Networks for Pedestrian Detection.

Hongmeng Song, Wenmin Wang and **Jinzhuo Wang**

IEEE International Conference on Multimedia Big Data (**BigMM**), 2017. **Best Paper Award**

### Tube ConvNets: Better Exploiting Motion for Action Recognition

Zhihao Li, Wenmin Wang, Nannan Li and **Jinzhuo Wang**

IEEE International Conference on Image Processing (**ICIP**), 2016

## Experience and Projects

**Microsoft Research Asia** *Beijing, China*

Research Assistant, Supervisor: Prof. Chong Luo and Prof. Wenjun Zeng *Aug. 2018 - Present*

I design and implement algorithms for the task of **action detection in video** in project "Deep Video Analytics".

**Digital Media Center of Peking University** *Shenzhen, China*

Research Assistant, Supervisor: Prof. Wenmin Wang, Prof. Ronggang Wang and Prof. Ge Li *Sep. 2016 - Jun. 2017*

I lead the computer vision group solving the tasks of 1) **video prediction** and 2) **collaborative learning for multiple neural nets**.

**Intelligent Multimedia and Virtual Reality** *China*

Grant No.20170302173036437 *Apr. 2016 - Jun. 2016*

Design and implement **collaborative deep learning** paradigm that enables bidirectional assistance of multiple deep neural nets in terms of fast convergence and performance improvement. Solutions were published on ACM MM 2017 and BigMM 2017.

**Immersive Video Generation and Efficient Coding for Virtual Reality** *China*

Natural science foundation of china (NSFC) No.61672063 *Oct. 2015 - Mar. 2016*

Design and implement **video prediction and generation** algorithms by learning object-centric transformations instead of pixel evolutions. Solutions were published on ACM MM 2017.

**Chinese Graduate Video Analysis Challenge** *Wuhan, China*

Three computer vision tasks *Jul. 2015*

Our team won the first place in **object detection in single camera**, the first place in **pedestrian tracking across cameras** and the third place in **anomaly detection in video**. Solutions are published at ICIP 2015 and ICIP 2016.

**TREC Video Retrieval Evaluation (TRECVID) Challenge** *Online*

Semantic Indexing (SIN) *Jan. 2014*

Our team won the fourth place in the task of **video semantic indexing**. Solutions are published on ICIP 2015.

## Honors & Awards

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| 2015-2016 , National Scholarship of China | *China* |
| 2009-2013 , Champion of PKU-THU (Go) Competition | *China* |
| 2003-2004 , Champion of National Championship of (Go) | *China* |
| 2015-2016 , Talent Scholarship of Peking University | *Peking University* |
| 2013-2018 , School Scholarship of Peking University | *Peking University* |
| 2016-2017 , Academic Innovation Award of Peking University | *Peking University* |
| 2014-2015 , Merit Student of Peking University | *Peking University* |

## Skills

Programming Languages and Tools

- C/C++, Python, Matlab, R, Java, Lua, LaTeX
- Proficient in OpenCV, Git, PyTorch, Torch7 and Tensorflow
- Experience with Caffe2, MXNet, MatConvNet, QT, OpenMP and OpenGL

**Specialty**

- Go: 6 dan level. I was selected to Chinese Chess Academy and received ten years of professional training in Go since the age of 5

## References

**Wen Gao** *Professor, Peking University*

Member of Chinese Academy of Engineering, IEEE Fellow, ACM Fellow *wgao@pku.edu.cn*

**Wenmin Wang** *Professor, Peking University*

*wangwm@ece.pku.edu.cn*

**Wenwu Zhu** *Professor, Tsinghua University*

IEEE Fellow, SPIE Fellow and ACM Distinguished Scientist *wwzhu@tsinghua.edu.cn*