

## Yingwei LI

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Last updated Nov., 2017

## Education

- **School of Computer Science, Fudan University** Shanghai, China  
*B.S. in Computer Science, Honor Class* Sep. 2014 - Jun. 2018(Expected)
  - Overall GPA: 3.74/4.00 (Rank 5/75), Major GPA: 3.95/4.00 (Top 3 in 75)

Examination	Overall GPA	Rank	Major GPA
1st year	3.60/4.00	16/75	N/A
2nd year	3.88/4.00	2/75	3.94/4.00
3rd year	3.91/4.00	4/75	3.96/4.00

  - Core Courses (Obtained 12 A and 2 A- in all major courses):  
Artificial Intelligence, Computer Vision, Algebra Structure and Mathematical Logic, Human-Computer Interaction, Digital Signal Processing and Speech Signal Analysis, Software Architecture, etc.
  - Scholarships: First Prize Scholarship from Fudan University Education Development Foundation (Top 5%); SCSK Scholarship (Only 2 in Honor Class)
- **National Taiwan University** Taipei, Taiwan  
*Exchange in Department of Computer Science & Information Engineering* Feb 2017 - Jun 2017
  - Overall GPA: 4.0/4.3
  - Core Courses (All are upper division courses or courses for master's students):  
Convex Optimization, Information Retrieval, Parallel Programming.
- **Center for Image Science, Johns Hopkins University** Baltimore, MD  
*Summer Research Intern in Prof. Yuille's Group* July 2017 - Present

## Research Experience

- **Use Visual Concepts to Defeat Adversaries** Johns Hopkins University, Baltimore  
*Research Intern, Advisor: Bloomberg Distinguished Professor Alan Yuille* July 2017 - Present
  - Developed a robust and interpretable method to defeat adversaries based on visual concept and achieved 96% accuracy on PASCAL 3D+ dataset.
  - Explored several generative models considered spatial and coupling correlation based on visual concept to do prediction on real examples. Now the accuracy has reached the CNN level in our dataset.
  - Currently working on testing the transferability of the developed methods and exploring better models.
- **Multiple Object Tracking Research** TuSimple, Inc., Beijing  
*Research Intern, Mentor: Dr. Naiyan Wang (Principal scientist)* July 2016 - Sept 2016
  - TuSimple is a research-based start-up company engaged in the area of self-driving car, and has published many papers in top conferences such as ICCV, CVPR and ECCV.
  - Conducted a systematic literature review on tracking algorithms, and reproduced several recent papers on tracking, detection and re-id.
  - Proposed a novel method to accelerate the tracking algorithm based on a multitask Convolution Neural Network, simultaneously extracting the appearance feature and detecting the object. Improved the siamese loss function and training method.
  - Tested the developed method on MOT2016 dataset, demonstrated a reduction of nearly 50% executing time compared to the traditional detection-based tracking algorithm, and improved 2% performance on the detection task compared to state-of-the-art.

- **SIFT-based Logo Recognition and CNN-based Object Detection** Fudan University, Shanghai  
*Research Intern, Supervisor: Prof. Wei Zhang, Prof. Xiangyang Xue* June 2015 - June 2016
  - Utilized the contestant information and the geometrical features of logos to improve the performance of logo recognition algorithms, based on SIFT.
  - Tested with Volkswagen logos collected from roads, and obtained 90% accuracy, 80% precision and recall.
  - Completed a literature summary of all literature papers on CNN-based object detection and their references since 2014 and reproduced results of Fast-RCNN, Faster-RCNN and YOLO.

## Selected Project Experiences

- **User Embedding Using Context and Link Information** National Taiwan University  
*Advisor: Prof. Pu-Jen Cheng* Mar 2017 - June 2017
  - Proposed to do web user embedding for encoding behavior patterns, including posting, rating and commenting on articles.
  - Proposed two methods to capture different types of behavior patterns: based on context and link information respectively, and show that the quality of embedding can be improved by combining the two methods.
  - According to the experiment results, the vectors generated by the proposed methods capture some behavior patterns and can be used to do related learning tasks, such as predicting user behaviors.
- **Course Helper for Fudan University** Fudan University  
*Instructor: Prof. Xianghua Ding* Mar 2016 - June 2016
  - A friendly and welcomed front-end application to help students in Fudan university decide better and quicker on their planning to arrange courses.
  - Designed and implemented an integrated algorithm to recommend suitable courses for students based on their programs, as well as warn them for improper arrangement (e.g. close or conflicted examination time) which are often ignored by students.
  - Conducted extensive survey, interviews and Human-Computer Interaction experiments. According to the survey, it saved 80% time of arranging course on average. This project is an open-source project and is still maintained by volunteer students.
- **Management of Spatial-Temporal Data** Fudan University  
*Course project for Data Structures, Instructor: Prof. Weiwei Sun* Sept 2015 - Dec 2015
  - Plotted maps with OpenCV2 using data from OpenStreetMap. Handled details like the layering of elevated roads. Plotting results can beat the commercial map software.
  - Applied shortest path algorithms like A\*, Dijkstra and SPFA. Validated their optimalities with sampling.
  - Compared the performance of different data structures for high-dimensional indexing like KD-tree, R-tree and nested trees.
  - Utilized taxi trajectory data to provide potential customer information for drivers at a specific time and location.

## Selected Honors & Awards

**2017** Excellent Student of Fudan University (Top 10%)  
**2016** Excellent Student of Fudan University (Top 10%)  
**2016** Chun-Tsung Scholarship (Top 3%, funded by Tsung-Dao Lee, winner of Nobel Prize in Physics)  
**2015** Second Prize, Shanghai College Student Mathematical Contest in Modeling  
**2014** Silver Medal, ACM-ICPC Shanghai Regional Contest  
**2013** Bronze Medal, China National Olympiad in Informatics

## Skills

**Languages:** C/C++, Python, Javascript, Matlab, ...

**Deep Learning Library:** MXNet, Caffe, Tensorflow, ...

**Parallel Programming Library:** CUDA, OpenMP, OpenCL, Pthread, ...

**Language:** Mandarin(Native Speaker), TOEFL 97, GRE V-152(56%)+Q-168(94%)+AW-3.0(18%)

## Interests

- Deep Learning, Computer Vision and Machine Learning
- Contemporary Art (Long-time volunteer at Museum of Contemporary Art Shanghai)