Aodong **Li**

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Education

New York University — *New York, the United States*

M.S. in Computer Science, GPA 3.95/4.0 — *Sept. 2017 - PRESENT*

- Master Thesis/Research Fellowship, CS Department in Courant

Beijing University of Posts and Telecommunications — *Beijing, China*

M.Eng. in Electronic and Communication Engineering, GPA 85.7/100.0 — *Sept. 2014 - Mar. 2017*

- Three counts of First Prize, BUPT Academic Scholarship

Beijing University of Posts and Telecommunications — *Beijing, China*

B.Eng. in Communication Engineering, GPA 87.8/100.0 — *Sept. 2010 - Jun. 2014*

- Three counts of Second Prize, BUPT Scholarship

Honors & Publications& Talks

Publications

A. Li, S. Zhang, D. Wang. Enhanced Neural Machine Translation by Learning from Draft. APSIPA ASC 2017.

A. Li, B. Yang, "A Low-complexity simulation of artificial pitch period detection algorithm", 2013 International Conference on Communication Technology, Volume: 51, (doi: 10.2495/ICCT20130361)

Talks

June, 2017 **Enhanced Neural Machine Translation by Learning from Draft**, at CSLT, Tsinghua University — *Beijing, China*

Technical Reports

A. Li, L. Sun, C. Li, Y. Wang, Y. Liu. 360-degree Video Streaming by Deep Reinforcement Learning. November, 2018.

Honors

2018	**M.S. Thesis/Research Fellowship**, Computer Science Department	*New York, US*
2015	**26th Place (out of 821 teams participated) (TOP 3%)**, KDD Cup 2015	*Sydney, Australia*
2014 - 2016	**Three Counts of First Prize (TOP 30%)**, BUPT Academic Scholarship	*Beijing, China*
2014 - 2016	**Three counts of Second Prize (6/400)**, BUPT Computer Programming Design Contest	*Beijing, China*
2011 - 2013	**Three Counts of Second Prize (TOP 3% - TOP 13%)**, BUPT Scholarship	*Beijing, China*
2012	**Merit Student (10%)**, Beijing University of Posts and Telecommunications	*Beijing, China*
2011	**Merit Student Leader (5%)**, Beijing University of Posts and Telecommunications	*Beijing, China*

Class Projects

Inferring Age Distribution of Blood Cells by Solving Inverse Problems — *New York University*

Course: Machine Learning for Healthcare — *Fall 2018*

- Try to infer the age distribution via deconvolving glycation process.
- Methods include constrained optimization and compressed sensing based idea.

Black Box Variational Inference on Latent Dirichlet Allocation — *New York University*

Course: Foundations of Machine Learning — *Fall 2018*

- Apply black box variational inference algorithm for Latent Dirichlet Allocation.
- Compare the performance with other inference algorithms.

Inferring age distribution of blood cells — *New York University*

Course: Deep Generative Model — *Spring 2018*

- Infer the blood cell age distribution via deconvolving the glycation process.
- Use numerical integral and linear programming.

Supervised Linear Distance Metric Learning with Convex Optimization *New York University*

Course: Convex and Nonsmooth Optimization *Spring 2018*

- Survey the main works in Distance Metric Learning with convex optimization.
- Identify the techniques these work used.
- Compare the general purpose solver CVX with special purpose solver.

Skills

Programming Python (Numpy, TensorFlow, Theano), C/C++, JAVA, JavaScript, PHP, HTML, SQL
Languages Chinese, English
Office LaTeX, MS Word, MS Excel, MS Powerpoint

Experience

CILVR Lab in New York University advised by Prof. Rajesh Ranganath *New York, USA*

Graduate Researcher *Sept. 2018 - Present*

- Research on Machine Learning for Healthcare
- Infer the age distribution of red blood cells through deconvolving the glycation process, however, with only limited measurements.
- Methods include 1) solve an inverse problem with regularization; 2) use compressed sensing based idea to find the Fourier transformation and then work in frequency domain; 3) employ Gaussian Process to impute missing data.
- Use neural networks to build connections with blood counts and other outcomes like iron deficiency.

NYU video lab in New York University advised by Prof. Yao Wang *New York, USA*

Graduate Researcher *Jun. 2018 - Present*

- Apply deep reinforcement learning techniques in two-tier 360-degree video streaming.
- Used the actor-critic algorithm to train an agent to manage the playback buffers.
- By-passing connections are added on the neural networks, to regularize the model to capture near optimal actions with ease.
- Incorporate the user vision information to help the agent to take better actions.
- Our system improves 18% over the performance of a baseline system. Detailed results are summarized in the corresponding technical report).

Center for Speech and Language Technologies in Tsinghua University (CSLTTHU) advised by Prof. Dong Wang *Beijing, China*

Research Intern *May 2016 - June 2017*

- Reproduced the work neural dialog systems, in both Theano and Tensorflow. Code on Github has received some popularity with several stars and forks.
- Conducted various research in Natural Language Processing.
- Proposed algorithms to enhance the semantic quality of the rare word vectors
- Proposed a two-stage translation approach based on the idea of drafting-and-refinement to enhance the Neural Machine Translation by BLEU score 0.9-2.5. The work is s published at APSIPA ASC 2017.
- Assigned by Professor Dong Wang to compose chapter 1: *Linear Model* of the book *Modern machine learning techniques*; book in press.
- Did research in translation style transfer. Tried to achieve this by changing the target sentence probability through another language model with a specific style.

Bytedance Technology Co., Ltd. *Beijing, China*

Data Analysis Intern *Mar. 2016 - Apr. 2016*

- Analyzing real-time clickstream data. Did A/B tests to check the performance of every recommendation system.
- Investigated the reason that a particular recommendation strategy is ineffective. Re-weighed recommendation systems to improve user experience.

Pattern Recognition and Intelligent System Lab in BUPT *Beijing, China*

Research Intern *May 2015 - Apr. 2016*

- Following the topic of *KDD CuP 2015*, conducted research on dropout prediction of online courses based on user logs. Did improvement on current data mining algorithm and achieved advancement to TOP 1% compared to KDD Cup 2015.
- Took part in a data mining competition *KDD Cup 2015*. As a team leader, our team conducted statistical methods to solve the issue of online course dropout prediction and ranked TOP 3% (26^{th} out of 821 teams participated).

Pattern Recognition and Intelligent System Lab in BUPT *Beijing, China*

Software Engineering Intern *Oct. 2014 - Sept. 2015*

- Advertisement Information Extraction:
- Individual project; Crawled data from Internet auto commercials.
- Introduced Naive Bayes Classifier and tf-idf to classify and extract target information. Both the system precision and recall reach over 90%.
- Network Management System:
- In charge of the development of the Alarm Module of a Network Management System that monitors the performance of all equipments through one or more hosts.
- Responsible for the configure of rsyslog and MySQL for Linux. Used PHP, JavaScript, HTML, CSS to develop Web front end and back end.

National Institute of Information Engineering *Beijing, China*

Software Engineering Intern *Oct. 2013 - Mar. 2014*

- Based on the idea of map and reduce, developped identity verification system for nationwide mobile service providers.
- Covered the entire project from interface to system architecture. Used JSP, JavaScript, HTML, CSS to develop Web front end and back end.
- Large scale and fast processing: was able to verify over sixty million pieces of user information at a time.

Multi-media Technology Research Center in BUPT *Beijing, China*

Research Intern *Dec. 2012 - Apr. 2013*

- Conducted research in Speech Signal Processing. Realized a novel approach to detecting pitch period by reducing algorithm complexity, time consuming and maintaining the accuracy; paper was published on 2013 International Conference on Communication Technology.

Extracurricular Activity

New York University *New York, US*

Teaching Assistant *Fall 2018*

- Did TA of the graduate course *Fundamental Algorithms*.
- Grader; Tutor.

Beijing University of Posts and Telecommunications *Beijing, China*

Teaching Assistant *Sept. 2014 - Jun.2015*

- Did TA of the undergraduate course *Data Structure* and *C++ Programming Language*.
- Hosted recitations; Graded assignments; Assisted in labs.

Soong Ching Ling Memorial Residence *Beijing, China*

Volunteer *Jun. 2012 - Jun. 2013*

- Helped maintain sightseeing order; stopped uncivilized behavior; helped the disabled.
- Introduced residence and exhibition of personal history to customers as a volunteer tour guide.

University Student Union *Beijing, China*

Minister of the Department of Student Culture Promotion *Sept. 2011 - Jun. 2012*

- Planed series of lectures on campus by inviting celebrities.
- Coordinated with other universities in Beijing about culture related functions.
- Established a platform to share functions' information with students across all universities participated.