Aodong **Li**

(+1) (646) 895-4765 | aodongl1@uci.edu | aodongli.github.io | aodongli

Education

University of California, Irvine — *California, the United States*

Ph.D. in Computer Science, advised by Stephan Mandt — *Sept. 2019 - Present*

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

M.S. in Computer Science, GPA 3.95/4.0 — *Sept. 2017 - May. 2019*

- 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

(Part of) 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

Comparisons of Structure Learning Algorithms on Human Skeleton Data — *New York University*

Course: Mathematical Tools for Data Science — *Spring 2019*

- Compare the algorithm performances when they are used in a less suitable scenario.
- Explore Chow-Liu algorithm and Graphical Lasso algorithm on human skeleton data.

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.

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.