Yan Xia

Personal Information

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Education

Current — M.S. in Machine Learning (Expected: Dec. 2015)
School of Computer Science, **Carnegie Mellon University**
Advisor: Prof. Ziv Bar-Joseph
GPA: 4.0/4.0 | List of Courses

August 2014 — Ph.D. in Biochemistry and Biophysics
Department of Molecular Biosciences, **University of Kansas**
Thesis: "Modulating protein function with small molecules through computational and experimental design techniques"
Advisor: Prof. John Karanicolas
CS-Related GPA: 4.0/4.0 | GPA: 3.8/4.0 | List of Courses

May 2007 — B.S. in Life Sciences
College of Life Sciences, **Wuhan University**, China
Rank: Top 10 % of class

Research Experience

2014-*present* — **Graduate Research Assistant**, Prof. Bar-Joseph, Carnegie Mellon University
Prediction of Drug Targets
Comparing gene experssion patterns between drug-treated experiments and gene knockdown experiments from high dimensional DNA micrioarray datasets. Building multi-task learning models to predict the drug targets from the differential experssion patterns.

2010-2014 — **Ph.D. Student**, Prof. Karanicolas, University of Kansas
Computational Design of Biological Molecules
1. Extracting and clustering chemical groups critical for protein-RNA interaction. Using the clustered groups to computationally design small-molecule inhibitors through virtual drug screening. 2. Computational designing of artificial protein switch that controls memory formation in mice models.

Awards and Honors

Jan. 2014 — Philip and Marjorie Newmark Award ($1,000), University of Kansas
2014-*present* — Membership of AAAS/Science for excellence in scientific research
2013-2014 — Graduate Teaching Assistantship ($21,000 per year), University of Kansas
2008-2013 — Graduate Research Assistantship ($21,000 per year), University of Kansas
Aug. 2007 — 1st Year Graduate Student Fellowship ($21,000), University of Kansas
Sept. 2003 — Outstanding Undergraduate Student Award (¥500), Wuhan University

Computer Skills

Programming Languages: Python, C++, Objective-C, Java, MATLAB, R
Others: LaTeX, Vim, Xcode, iOS SDK, Git, Linux

Selected Personal Projects

Tree-based Elastic Net	A multi-task learning version of Elastic Net. Using tree-based regularization to represent the relatedness model among different tasks. Language: MATLAB, Python
Cat vs. Dog Classifier	Employing convolutional neural network to learn a classifier that distinguishes Internet pictures of cats from dogs. Language: MATLAB, Python
From NAND to Tetris	Simulating a general-purpose computer system from the ground up, including logic gates, CPU, memory, assembler, compiler and operating system. Language: JAVA, HDL
Sliding Puzzle Solver	Using the A* search algorithm to solve sliding puzzles. Language: JAVA
Image Retargeting	Content-aware image resizing program that implements the seam carving algorithm. Language: JAVA
File Compression	A file compression program that implements the Burrows-Wheeler transform, move-to-front encoding and Huffman encoding Language: JAVA
Buffer King	an iOS app that helps experimental biologists prepare biological solutions Language: Objective-C

Selected Online Courses

Introduction to Statistics, **Udacity** Introduction to Artificial Intelligence, **Udacity** Machine Learning, **Coursera** Algorithms: Design and Analysis, Part 1, **Coursera** Algorithms: Design and Analysis, Part 2, **Coursera** Introduction to Theoretical Computer Science, **Udacity** Computer Networks, **Coursera** Introduction to Databases, **Class2Go**	With Certification
Neural Network for Machine Learning, **Coursera** Mathematics for Computer Science, **MIT OpenCourseWare** Introduction to Algorithms, **MIT OpenCourseWare** Algorithms, Part I, **Coursera** Algorithms, Part II, **Coursera**	Completed

Publications

Xia, Y; DiPrimio, N; Keppel, T; Vo, B; Fraser, K; Battaile, K; Egan, C; Bystroff, C; Lovell, S; Weis, D; Anderson, J. C; Karanicolas, J., "The designability of protein switches by chemical rescue of structure: mechanisms of inactivation and reactivation", *J. Amer. Chem. Soc.*, 135, p. 18840, 2013.

Xia, Y; Gowthaman, R; Lan, L; Rogers, S;l Wolfe, AR; Tsao, B; Li, K; Yu, J; Marquez, R; Liu, C; Aubé, J; Neufeld, K; Xu, L; Karanicolas, J., "Identifying inhibitors of the Musashi-1 protein-RNA interaction by hotspot mimicry", *submitted to Nat. Commun.*, 2015.

Ali, A; Reis, J; **Xia, Y**; Rashid, A; Brechun, K; Borisenko, V; Josselyn, S; Karanicolas, J; Woolley, A., "Opto-

genetic control of CREB signaling in living cells", *submitted to Proc. Natl. Acad. Sci.*, 2014.

Reed, T., Lushington, G. H., **Xia, Y**, Hirakawa, H., Travis, D. M., Mure, M., Scott, E. E., and Limburg, J., "Crystal Structure of Histamine Dehydrogenase from *Nocardioides simplex*", *J. Biol. Chem.*, 285(33), 25782-25791, 2010.

M.S. in Machine Learning, Carnegie Mellon University

Fall 2014 Grades

Course	Units	Grade
Machine Learning	12	A
Intermediate Statistics	12	A
Machine Learning Research	6	S
Journal Club	6	S
	Gpa	**4.0**

Ph.D. in Biochemistry and Biophysics, University of Kansas

CS-Related Grades

Course	Units	Grade
Linear Algebra	2	A
Introduction to Theory of Computing	3	A
Data Structure	4	A
Computer Architecture	3	A
Introduction to Operating Systems	3	A
Topics in Bioinformatics	1	A
	Gpa	**4.0**