

Xiang Ji

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1559 22nd Ave, San Francisco, CA 94122

Objective	Software Engineer, Machine Learning	
Qualifications	Programming languages Java, Python, C, C++, Scala, Scheme	
	Developing tools <i>Machine learning:</i> Mahout, MATLAB <i>Distributed system:</i> Hadoop, Pig, Scalding, Storm, Summingbird <i>Cross-protocol development:</i> Thrift, Finagle <i>Efficiency tooling:</i> IntelliJ IDEA, Eclipse, Mesos, Maven, Ant <i>Neural network simulation:</i> Nengo, NuPic	
	Experienced fields <ul style="list-style-type: none">• Neural network modeling• Large scale machine learning system design / implementation• Algorithm and data structure• Basic knowledge in security, OS, UI, computer vision, etc.	
Education	Master of Mathematics, Computer Science	2012.4 – 2014.4 (expected)
	University of Waterloo, Waterloo, Canada Thesis topic: Path Integration with Velocity-Controlled Oscillators Relevant courses: Computational Neuroscience, Applied Machine Learning, Probabilistic Inference and Machine Learning	
	Exchange Student, Computer Science	2011.9 – 2012.3
	University of Waterloo, Waterloo, Canada Thesis topic: Hippocampus Modeling on Spatial Alternation Task Relevant courses: User Interfaces, Machine Learning, Algorithms, Computer Vision	
	Bachelor of Engineering, Computer Science	2008.9 – 2012.6
	Tsinghua University, Beijing, China Relevant courses: Artificial Intelligence, Operating System, Network, Computer Architecture, Data Structures	
Internship	SDE – Twitter Inc., San Francisco	2013.8 – 2013.12 (expected)
	Developing a large scale real-time recommendation system infrastructure <ul style="list-style-type: none">• Serving most of Twitter's recommendation products• Using content-boosted collaborative filtering with random walk model on Hadoop / Storm	
	SDET – Hulu LLC., Beijing	2010.9 – 2010.12
	Developed recommendation system unit tests <ul style="list-style-type: none">• Implemented Automatic testing in Ruby and Java• Deployed test coverage tool Emma for java tests	

Projects	Modeling Path Integration using Velocity Controlled Oscillators	
	Computational Neuroscience	
	<ul style="list-style-type: none"> • Simulated rat's hippocampus using ~50,000 virtual neurons • Built a virtual rat that is able to navigate in a 2D space • Included stabilizing mechanisms and sensory inputs 	
	Multi-level Position Reconstruction from Hippocampal Place Cells	
	Applied Machine Learning <ul style="list-style-type: none"> • Implemented machine learning algorithms on ~20GB neural data • Designed multiple feature levels for faster and more accurate learning • Involved Bayesian networks in learning on neural data • Average error reduced to 1/3 of previous results 	
	Private Learning with Homomorphic Encryption	
	Probabilistic Inference and Machine Learning	
	<ul style="list-style-type: none"> • Reviewed different private machine learning approaches • Discussed the difference of schemes and algorithms • Evaluated algorithm efficiency based on feature amount and data size 	
	Approaches to Handwritten Digit Recognition	
	Machine Learning <ul style="list-style-type: none"> • Implemented several ML algorithms on recognizing handwritten digits • Compared time and accuracy of logistic regression, SVM and ANN 	
	Talking Avatar with Facial Expressions on Android Platform	
	Summer workshop	
	<ul style="list-style-type: none"> • Built a virtual face with expressions and voice on Android platform • Involved in expression modeling, audio-video sync, UI design, etc. • Used Java and C, including JNI 	
Publications	Articles in Refereed Journals	
	<ol style="list-style-type: none"> 1. X. Ji, S. Kushagra, J. Orchard, "Updating the Entorhinal Cortex Fourier Model with Visual-Sensory Input", <i>Canadian Conference on Artificial Intelligence (AI) 2013</i>. 2. J. Orchard, H Yang, X. Ji, "Does the Entorhinal Cortex use the Fourier Transform?", <i>Canadian Conference on Artificial Intelligence (AI) 2013</i>. 3. B. Liu, G. Wu, Z. Wang, X. Ji, "Semantic integration of differently asynchronous audiovisual information in videos of real-world events in cognitive processing: An ERP study", <i>Neuroscience Letters</i>, July 2011. 	
Awards	David R. Cheriton Graduate Scholarship, \$10,000	2012 – 2013
	UW Special Graduate Scholarship, \$4,000	2012 – 2013
	Outstanding Student Leader, Tsinghua University	2011
	Tencent Scholarship, RMB 1,000	2009
	National Physics Competition for University Students, Second Prize	2009
	National Physics Olympiad, First Prize	2008
Interests	Machine learning: Deep learning; Large scale / parallel / online ML schemes	
	Brain simulation: How can bottom-up methods meet top-down methods	
	Others: Music arrangement; Photography; Jogging; Cycling; Gaming	