

# Xiang Ji

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

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