

Xiang Ji

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Qualifications

Expertise

- Full stack development
- Data labeling
- Computational neuroscience

Programming languages

Java, Python, C++, JavaScript, TypeScript

Work

SWE – Google LLC.

2016.1 – present

Maple: health data labeling tool

- Led and launched the first end-to-end pipeline for Maple

Actions on Google: third party developer tools for Google Assistant

- Led and launched AoG console backend

SWE – Google Canada Corporation

2014.10 – 2016.1

Firebase: Google's mobile focused platform for third party developers

- Developed Firebase console backend

SDE – Twitter Inc.

2013.8 – 2013.12

Designed and implemented a real-time tweet recommendation service

- Using content-boosted collaborative filtering with random walk model on Hadoop / Storm

SDET – Hulu LLC.

2010.9 – 2010.12

Developed recommendation system unit tests

- Unit testing in Ruby and Java
- Deployed test coverage tool

Education

Master of Mathematics, Computer Science

2012.4 – 2014.6

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

Research

Modeling Path Integration using Velocity Controlled Oscillators

Computational Neuroscience

- 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

- 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

- 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

- 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

- 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

1. **X. Ji**, S. Kushagra, J. Orchard, "Updating the Entorhinal Cortex Fourier Model with Visual-Sensory Input", *Canadian Conference on Artificial Intelligence (AI) 2013*.
2. J. Orchard, H Yang, **X. Ji**, "Does the Entorhinal Cortex use the Fourier Transform?", *Canadian Conference on Artificial Intelligence (AI) 2013*.
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", *Neuroscience Letters*, July 2011.

Awards

David R. Cheriton Graduate Scholarship	2012 – 2013
UW Special Graduate Scholarship	2012 – 2013
Outstanding Student Leader, Tsinghua University	2011

Interests

Machine learning: End-to-end production ML systems

Computational neuroscience: Bottom-up brain simulation