

Interests

- **Computer Vision, Human-Computer Interaction and Machine Learning:**
 - Deep Learning, Transfer Learning, Model Conversion
 - Object Detection, Object Tracking, Face Verification, Action Recognition, Motion Analysis
 - Recommendation System, User Behavior Analysis
- **Blockchain Techniques:**
 - Smart Contracts & Blockchain Development, Security Enhancement
 - Decentralized Training Strategy

Education

- **University of Alberta** Edmonton, AB
Ph.D. in Computing Science *Sept. 2017 - Present*
- **University of Alberta** Edmonton, AB
M.S. Computing Science, Specialization with Multimedia *Sept. 2015 - Apr. 2017*
- **University of Alberta** Edmonton, AB
B.Sc. Science, Specialization in Computing Science *Sept. 2010 - Dec. 2015*

Research and Work Experience

- **3vGeomatics Inc** Edmonton, AB
MITACS Accelerate Research Intern *July. 2017 - Present*
 - Large scale motion mapping of ground displacement with InSAR images
 - Using Deep Learning technique to denoise InSAR noisy images
- **Bi.Link Inc & Bi9.cn Inc** Shanghai, China
Co-founder *April. 2018 - Present*
 - Build a Digital asset management platform, contribute to hedge fund strategies by analyzing trading behaviors and environments of multiply Digital Currency Marketplaces
 - Bi9.cn helps customers to earn more than \$1.5 million profit in 2018
 - Build a decentralized digital asset lending platform powered by blockchain technique
 - Digital Assets used as a collateral for loans are stored in a public Ethereum and EOS blockchain to obtain high network security with the use of a non-custodian depository smart contract.
 - Take charge of developing 1) all business logic EOS smart contracts 2) corresponding front-end APIs for web apps integration and interaction with smart contracts on EOS public chain.
- **Boardee Inc** Edmonton, AB
Co-founder *May. 2016 - Sept. 2017*

- Developed and co-designed a front-end cross-platform mobile applications.
- Co-developed a back-end system for fetching location-awarded social media contents from the Internet.
- Explored content recommendation and user notification strategies based on user's preference via deep recurrent neural networks.

- **TCL Research America, Silicon Valley**

San Jose, CA

Research Engineer Intern

May. 2016 - Expected Jan. 2017

- Developed and led team for using the Drone as inter-mediator to enhance human to human communication.
- Implemented an Android app for tracking human face to control the Parrot Bebop Drone to follow the detected person.
- Developed a system for human body detection, tracking, and human face detection, verification via deep convolutional neural networks, and built an autopilot framework for UAV devices.
- First inventor of three patents and co-inventor of one patent on related works.

- **City of Edmonton, IT Department**

Edmonton, AB

Course Project under Dr. Lihang Ying and Dr. Irene Cheng

Jan. 2016 - Apr. 2016

- Developed and led the team for feature matching based residential area recommendation system.
- Designed the three-layers system, developed mobile app and web app, co-developed the back-end business logic service.

- **Orbital Software Solutions Inc**

Edmonton, AB

Research Assistant under Dr. Irene Cheng

Sep. 2015 - Mar. 2016

- Developed a sensor-based Cloud Computing Interface (CCI) - for motion analysis as a performance metric and education Tool.
- Developed a Multi-Leap Motion Sensor System via Linux Container (LXC) technique, and used machine learning algorithm for motion data fusion to overcome the single vision based sensor's occlusion issue.

- **Surgical Simulation Research Lab, University of Alberta**

Edmonton, AB

Research Assistant under Dr. Bin Zheng and Dr. Anup Basu

Jan. 2015 - Apr. 2015

- Developed a Smart Sensor-based Motion Detection system for hand movement training in open surgery by using a statistical model.

- **Multimedia Reserach Center, University of Alberta**

Edmonton, AB

Research Assistant under Dr. Irene Cheng and Dr. Anup Basu

Jan. 2015 - Apr. 2015

- Developed a Segmentation Quality Assessment mode for Ground Truth Delineation via medical Image Segmentation based on Local Consistency and Distribution Map Analysis.

- **ShunSoft Ltd**

Shanghai, China

Freelancer, Outsource Developer

Sept. 2014 - Jun. 2015

- Developed the iOS version of ShunSoft's stock and futures trading app, which allows users to do transactions, and change the risk management settings of their accounts through iOS devices.
- Designed and co-develop ShunSoft's back-end dashboard that allows multiple users to make detailed stock auto-transaction and risk management settings simultaneously, which focused on the requirements of security, availability and stability.

- **Game Cloud Ltd**

Edmonton, AB

Co-founder

Jan. 2014 - Sept. 2014

- Co-founded a start-up mobile game studio as one of core programmer for creating interesting casual and arcade mobile phone games and reached 500K downloads.

Publications

- **X. Sun**, A. Zimmer, N. Kottayil, S. Mukherjee, I. Cheng, "DeepInSAR: A Deep Learning Framework for SAR Interferometric Phase Restoration and Coherence Estimation", Journal Submission. 2019
- **X. Sun**, N. Kottayil, S. Mukherjee, I. Cheng, "Adversarial Training for Dual-stage Image Denoising Enhanced with Feature Matching", International Conference on Smart Multimedia (ICSM). 2018
- S. Mukherjee, A. Zimmer, N. Kottayil, **X. Sun**, P Ghuman, I. Cheng, "CNN-Based InSAR Denoising and Coherence Metric" IEEE SENSORS. 2018
- N. Kottayil, A. Zimmer, S. Mukherjee, **X. Sun**, P Ghuman, I. Cheng, "Accurate Pixel-Based Noise Estimation for InSAR Interferograms" IEEE SENSORS. 2018
- **X. Sun**, A. Basu, I. Cheng, "Multi-Sensor Motion Fusion Using Deep Neural Network Learning", International Journal of Multimedia Data Engineering and Management (IJMDEM). 2017
- **X. Sun**, S. Byrns, I. Cheng, B Zheng and A. Basu, "Smart Sensor-Based Motion Detection System for Objective Measurement of Hand Movements in Open Surgery", Journal of Medical System, 41.2 (2017): 24.
- **X. Sun**, I. Cheng, A. Basu, "Spatio-Temporal Optimized Multi-Sensor Motion Fusion", IEEE International Symposium on Multimedia (ISM), 2016.
- A.-C. Furtado, **X. Sun**, A. Basu and I. Cheng, "Optimized Per-Joint Compression of Hand Motion Data", IEEE System Man and Cybernetics (SMC), 2016.
- I. Cheng, **X. Sun**, N. Alsufyani, Z. Xiong, P. Major and A. Basu, "Ground Truth Delineation for Medical Image Segmentation based on "Local Consistency and Distribution Map Analysis," IEEE Engineering in Medicine and Biology Conference (EMBC), 2015.

Patents

- **X. Sun**, X.L. Liao, X. Ren and H. Wang. "System and method for enhancing target tracking via detector and tracker fusion for unmanned aerial vehicles". Grant, US Patent No.10140719 B2
- **X. Sun**, X.L. Liao, X. Ren and H. Wang. "Face detection, identification, and tracking system for robotic devices". Grant, US Patent No.10068135 B2
- **X. Sun**, X.L. Liao, X. Ren and H. Wang. "System and method for vision based flight self-stabilization by deep gated recurrent q-networks ". US Patent Application Allowed
- X.L. Liao, **X. Sun**, X. Ren and H. Wang. "Method and device for quasi-gibbs structure sampling by deep permutation for person identity inference". filed September 2016, Patent Pending

Awards

- Awarded a University of Alberta Doctoral Recruitment Scholarship

- Awarded a University of Alberta Academic Excellence Scholarship
- Awarded an International Student Scholarship (Bridging Program)
- Awarded Golden Key International Honor Society Membership

Computer Skills

- **Languages:** C, C++, Python, Obj, Obj-C, , HTML, Javascript, CSS, Matlab, Java
- **Tools:** Linux Shell, GNU Make, Vim, Visual Studio, Eclipse, Xcode, Qt-Creator, Tensorflow, pyTorch, Caffe, OpenCV, dlib, Qt, Node.js, Ionic, EOS, Apache Cordova, Cocoa Touch, Docker, LXC.
- **OS:**Linux, Mac OS and Windows.