

Min Bai

University of Toronto
Department of Computer Science
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Education **PhD student, Computer Science** Jan 2017 - May 2021 (est)
University of Toronto, Ontario, Canada
Supervised by Prof. Raquel Urtasun

MSc., Computer Science Sep 2015 - Jan 2017
University of Toronto, Ontario, Canada
Supervised by Prof. Raquel Urtasun

- Cumulative GPA: 3.95/4.00
- NSERC-CGSM (2015) and Ontario Graduate Scholarship (2016) Recipient
- GRE (2014) - Quantitative: 170 (98th percentile), Verbal: 169 (99th percentile), Writing: 5.5 (97th percentile)

BASc., Electrical Engineering Sep 2008 - May 2013
University of Waterloo, Ontario, Canada

- 93 % CGPA (3.94/4.00 equivalent)
- Degree conferred With Distinction - Dean's Honours' List

Selected Publications

- B. Yang, **M. Bai**, M. Liang, W. Zeng, R. Urtasun, *Auto4D: Learning to Label 4D Objects from Sequential Point Clouds*, submitted to CVPR 2021
- **M. Bai**, S. Wang, K. Wong, E. Yumer, R. Urtasun, *Non-Parametric Memory for Spatio-Temporal Segmentation of Construction Zones for Self-Driving*, submitted to IROS 2019.
- **M. Bai**^{*}, G. Mattyus^{*}, N. Homyounfar, S. Wang, S. K. Lakshmikanth, R. Urtasun, *Deep Multi-Sensor Lane Detection*, in IROS 2018. ^{*} denotes equal contributions.
- S. Wang, **M. Bai**, G. Mattyus, H. Chu, W. Luo, B. Yang, J. Liang, J. Cheverie, S. Fidler, R. Urtasun, *TorontoCity: Seeing the World with a Million Eyes*, in ICCV 2017.
- **M. Bai**, R. Urtasun, *Deep Watershed Transform for Instance Segmentation*, in CVPR 2017.
- **M. Bai**^{*}, W. Luo^{*}, K. Kundu, R. Urtasun, *Exploiting Semantic Information and Deep Matching for Optical Flow*, in ECCV 2016. ^{*} denotes equal contributions.

Industry Experience **Research Scientist** May 2017 - Feb 2021
Advanced Technologies Group, Uber Inc, Toronto, Ontario

- Develop and prototype new computer vision and machine learning models for parts of the autonomous-driving software stack (see publications)
- Design and provide guidance for creation and curation of various large scale datasets including 3D lane annotation, 2D / 3D semantic and instance segmentation, construction zones
- Review and write academic publications, and attend conferences
- Assist software engineering team in integrating new technologies into autonomous-driving platform

Wireless Systems Engineer

Apple, Cupertino, CA

May 2013 - Jul 2015

- Performed radiated power, receiver sensitivity, and throughput measurements using anechoic chambers, cell emulators, spectrum analyzers, VNAs
- Set up, modified, and maintained anechoic chamber test systems including calibration and verification of measurement antennas, switching paths, test equipment, and software automation suites

Advanced Technologies Group Intern

NVIDIA, Santa Clara, CA

Jan - Apr and Sep - Dec 2012

- Conduct functional and electrical tests to characterize new silicon tech focusing on high frequency signal integrity and power delivery system noise
- Assisted in correlating real world chip performance with simulation data
- Prepared presentation material to share findings with various engineering teams
- Conducted research into availability and feasibility of alternative methods to solve data throughput limitations of present PCB and silicon implementations

Power System Analyst Intern

IESO, Mississauga, ON

Apr 2011 - Sep 2011

- Worked in Models and Data department to update, modify, and maintain load flow and dynamic data models of power system components
- Set up load flow cases from the Ontario base case; created, ran, and analyzed transient simulations in PSSE 30
- Developed and updated tools and scripts in Python to aid data processing
- Acquired real world exposure to power systems operation and analysis

BlackBerry Hardware Verification Intern

BlackBerry, Waterloo, ON

Sep 2010 - Dec 2010

- Tested variables relating to digital signal transmission on BlackBerry boards using oscilloscopes at various temperatures
- Worked with and updated automated and manual test plans
- Gained practical lab experience including working with sensitive electronics, micro-soldering, and testing methodology
- Obtained real world knowledge regarding operation of various data buses including I2C and SPI

Wireless Systems Design Assistant

BlackBerry, Waterloo, ON

Jan 2010 - May 2010

- Researched wireless technologies introduced defined by 3GPP specs
- Composed technical reports detailing new device and network capabilities to inform other teams of nature and scope of updates
- Attained in depth understanding of numerous newly introduced wireless concepts, especially of physical and data link layers

Quality Assurance Analyst Intern

Genesys Telecommunications, Markham, ON

May 2009 - Aug 2009

- Developed, maintained, and updated scripts used to automate over 10,000 test cases for the voice activated call center software

- Created automated test result report generation tool using Perl to automatically parse nightly test results and host clear and legible report using open source Java based server, thereby saving 2+ person-hour per day
- Improved reliability and performance of hardware and software systems through researching and implementing new tools
- Gained working knowledge of Java and Perl

Awards

- NSERC - Canada Graduate Scholarship - Doctorate
University of Toronto May 2017
- Ontario Graduate Scholarship
University of Toronto Sep 2016
- NSERC - Canada Graduate Scholarship - Master's
University of Toronto Sep 2015
- QE II Graduate Scholarships in Sci. & Tech. (declined for NSERC CGS-M)
University of Toronto Sep 2015
- Dean's Honour List
University of Waterloo all semesters, 2008 - 2013
- Savvas Chamberlain Scholarship
University of Waterloo Sep 2012
- Hydro One Networks Inc. Undergraduate Scholarship
University of Waterloo Jul 2012
- President's International Experience Award
University of Waterloo Jan 2012
- President's Research Award
University of Waterloo May 2011
- Engineering Faculty / Staff Upper Year Scholarship
University of Waterloo May 2010
- Upper Year Scholarship
University of Waterloo Sep 2009
- Nortel Networks Undergraduate Scholarship
University of Waterloo Sep 2008
- President's Scholarship of Distinction
University of Waterloo Sep 2008

Interests

Computer vision - optical flow estimation, instance segmentation, object recognition and tracking

Machine learning - probabilistic graphical models, deep learning