

Namdar Homayounfar

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📄 <https://nhoma.github.io>

Education

- Fall 2014 - Present **PhD Candidate in Computer Science**, *University of Toronto*, Toronto, Canada.
Supervision: Prof. Raquel Urtasun
Specialization: Machine Learning and Computer Vision
- 2013 - 2014 **MSc Statistics**, *University of Toronto*, Toronto, Canada, *GPA 4.0/4.0*.
- 2009 - 2013 **BSc Honours Probability and Statistics**, *McGill University*, Montreal, Canada, *GPA 3.51/4.0*.

Work Experience

- Fall 2017 - Present **Research Scientist**, *Uber Advanced Technologies*, Toronto, Canada.
Manager: Raquel Urtasun
- Summer 2017 - **Research Scientist Intern**, *Uber Advanced Technologies*, Toronto, Canada.
Fall 2017 *Manager*: Raquel Urtasun

Publications and Submissions

- 2021 **VideoClick: Video Object Segmentation with a Single Click**, *Namdar Homayounfar, Justin Liang, Wei-Chiu Ma, Raquel Urtasun*, arxiv 2021.
- 2020 **LevelSet R-CNN: A Deep Variational Method for Instance Segmentation**, *Namdar Homayounfar**, *Yuwen Xiong**, *Justin Liang**, *Wei-Chiu Ma, Raquel Urtasun*, ECCV 2020.
- 2020 **PolyTransform: Deep Polygon Transformer for Instance Segmentation**, *Justin Liang, Namdar Homayounfar, Wei-Chiu Ma, Yuwen Xiong, Rui Hu, Raquel Urtasun*, CVPR 2020.
- 2019 **Exploiting Sparse Semantic HD Maps for Self-Driving Vehicle Localization**, *Wei-Chiu Ma **, *Ignacio Tartavull**, *Ion Andrei Barsan**, *Shenlong Wang, Min Bai, Gellert Mattyus, Namdar Homayounfar, Shrinidhi Kowshika Lakshmikanth, Andrei Pokrovsky, Raquel Urtasun*, IROS 2019.
- 2019 **DAGMapper: Learning to Map by Discovering Lane Topology**, *Namdar Homayounfar, Wei-Chiu Ma, Justin Liang, Xinyu Wu, Jack Fan, Raquel Urtasun*, ICCV 2019.
- 2019 **Convolutional Recurrent Network for Road Boundary Extraction**, *Justin Liang**, *Namdar Homayounfar**, *Wei-Chiu Ma, Shenlong Wang, Raquel Urtasun*, CVPR 2019.
- 2018 **Deep Multi-Sensor Lane Detection**, *Min Bai**, *Gellert Mattyus**, *Namdar Homayounfar, Shenlong Wang, Shrinidhi Kowshika Lakshmikanth, Raquel Urtasun*, IROS 2018.
- 2018 **Hierarchical Recurrent Attention Networks for Structured Online Maps**, *Namdar Homayounfar, Wei-Chiu Ma, Shrinidhi Kowshika Lakshmikanth, Raquel Urtasun*, CVPR 2018.
- 2017 **Sports Field Localization via Deep Structured Models**, *Namdar Homayounfar, Sanja Fidler, Raquel Urtasun*, CVPR 2017.
- 2015 **Periodic Solutions of a Singularly Perturbed Delay Differential Equation with Two State-Dependent Delays**, *Antony Humphries, Daniel Bernucci, Renato Calleja, Namdar Homayounfar, Michael Snarski*, Journal of Dynamics and Differential Equations.
- 2013 **MCMC Clustering and Its Convergence Issues**, *Namdar Homayounfar, Masoud Asgharian, Vahid Partovi Nia*, Contributed Poster in JSM.

Research Assistant Experience

- Summer 2013 - **Research Assistant**, *"Finite Mixture of Regression Models with Varying Coefficient Means"*, McGill University
Fall 2013 and University of Toronto, Montreal and Toronto, Canada.
Proposed a new class of Finite Mixture of Regression Models and developed an estimation procedure for such models in the R environment. Demonstrated using a simulation study that the proposed model and its estimation procedure have better statistical performance than the traditional Finite Mixture of Linear Regression Models.
- Winter 2013 **Research Assistant**, *"Bayesian Clustering with Markov Chain Monte Carlo"*, McGill University, Montreal, Canada.
Implemented a Bayesian clustering methodology and investigated its convergence issues using the Rcpp package which integrates R and C++ for higher performance. Presented a poster about the project at the 2013 JSM Conference.

- Summer 2012 **Research Assistant**, "*The effect of timing of GCSF administration in neutrophil dynamics*", Centre for Applied Mathematics in Bioscience and Medicine, Montreal, Canada.
Investigated the effects of timing of chemotherapy drug administration on the minimum levels of white blood cells in cancer patients using analytical techniques and simulation studies in MATLAB. Proposed new research directions based on findings.
- Summer 2011 **Research Assistant**, "*Computing Periodic Orbits in a Family of State Dependent Delay Differential Equations*", Institut des Sciences Mathématiques, Montreal, Canada.
Coded and analyzed the dynamical features of a family of state-dependent delay differential equations using numerical methods implemented in the MATLAB software package DDEBIFTOOL.

Teaching Assistant Experience

- 2013 - 2017 **Teaching Assistant**, Department of Statistics, University of Toronto, Toronto, Canada.
Performed TA duties for various undergraduate and graduate courses in machine learning and probability and statistics.

Awards and Scholarships

- Fall 2017 - Summer 2018 **Ontario Graduate Scholarship (OGS) at the University of Toronto.**
- Fall 2016 - Summer 2017 **Ontario Graduate Scholarship (OGS) at the University of Toronto.**
- Fall 2014 **University of Toronto Faculty of Arts and Science Outstanding Graduate Admissions Award.**
- Fall 2014 - Present **University of Toronto PhD Fellowship.**
- Summer 2014 **University of Toronto Department of Statistics Andrews Academic Achievement Award for outstanding work in the Master's program.**
- Fall 2013 - Summer 2014 **University of Toronto MSc Fellowship.**
- Summer 2012 **NSERC Award through Professors Michael Mackey, Antony Humphries and Jacques Bélair.**
- Winter 2012 **CAMBAM Undergraduate Research Fellowship.**
- Summer 2011 **Institut Des Sciences Mathématiques Undergraduate Summer Scholarship.**

Toolbox

- Languages: PyTorch, Tensorflow, Python, R, MATLAB, C/C++
Human Languages: English, French, Persian
OS: Unix, Mac, Windows

Miscellaneous

- Citizenship: Canadian
Hobbies: Soccer, Traveling, Books, Cooking