Sergio **Casas**

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Education

Ph.D. in Computer Science — *Toronto, Canada*

University of Toronto (Supervisor: Prof. Raquel Urtasun) — *Jan. 2020 - Present*

- Research focus: Multi-Agent Interaction Reasoning for End-to-end Neural Motion Planning in Self-Driving
- Courses: Probabilistic Graphical Models, Graphics and Animation

M.S. in Computer Science — *Toronto, Canada*

University of Toronto (Supervisor: Prof. Raquel Urtasun) — *Sep. 2018 - Jan. 2020*

- Courses (GPA 4.0): Machine Learning, Robotics (Imitation Learning and Reinforcement Learning), ML for Health
- Thesis: *Joint Perception and Behavior Forecasting for Self-Driving Vehicles*

B.S. in Computer Science — *Barcelona, Spain*

Universitat Politècnica de Catalunya — *Sep. 2013 - Jul. 2017*

- Grade 9.0/10.0, PCTL 1%, Honors in 17 out of 35 subjects. Focus on data structures and algorithms
- Capstone project: *Learning to Analyze Basketball Games: Neural Action Recognition with Visual Attention*

B.S. Industrial Technology Engineering — *Barcelona, Spain*

Universitat Politècnica de Catalunya — *Sep. 2012 - Jul. 2017*

- Grade 8.6/10.0, PCTL 1%, Honors in 20 out of 42 subjects. Strong background in algebra, calculus, and optimization

MBA Summer School — *Barcelona, Spain*

IESE Business School — *Jul. 2016*

Experience

Uber Advanced Technologies Group — *Toronto, Canada*

Research Scientist II — *Mar. 2019 - Present*

- Research focus: end-to-end interpretable autonomy models and multi-agent simulation
- Led 5+ intern projects, first authored 3 publications and 2 current submissions, collaborated in other 5 projects

Research Scientist — *Mar. 2018 - Mar. 2019*

- Initial work on better multi-agent interaction modeling and improved output parameterizations for motion forecasting
- Started a successful cross-office collaboration and mentored my first intern, leading to the publication of *SpAGNN* and *DRF-Net*

Research Intern — *Oct. 2017 - Mar. 2018*

- Work on end-to-end learnable perception and prediction to exploit richer representations and uncertainty propagation
- Led to the publication of *IntentNet*

University of Toronto — *Toronto, Canada*

Research Assistant — *Feb. 2017 - Aug. 2017*

- Research on automatizing the NBA Play-by-Play reports using spatio-temporal reasoning and attention mechanisms on tracking data
- Supervised by Prof. Raquel Urtasun

Arcvi Big Data Agency — *Barcelona, Spain*

Data Analytics Consultant — *Jun. 2016 - Jan. 2017*

- Creation of strategy solutions using simple Machine Learning techniques such as linear regression and decision trees
- Advised companies across several industries such as retail, insurance and credit

Psycle Interactive Ltd. — *Whitchurch, United Kingdom*

Software Engineering Intern — *Jul. 2015 - Sep. 2015*

- Internal research project on Document Topic Classification with Non-negative matrix factorization
- Development of an Android application for a global company, including the UI/UX design

Skills

Programming Languages Proficient with Python (Pytorch + Numpy + Matplotlib) and LaTeX. Familiar with C/C++, Java, Matlab, R, Go

English (TOEFL iBT 114), Spanish (Native), Catalan (Native)

Publications

Implicit Latent Variable Model for Scene-Consistent Motion Forecasting — *ECCV20*
S. Casas*, C. Gulino*, S. Suo*, K. Luo, R. Liao, R. Urtasun — *Virtual*

Perceive, Predict, and Plan: Safe Motion Planning through Interpretable Semantic Representations — *ECCV20*
A. Sadat*, S. Casas*, M. Ren, X. Wu, P. Dhawan, R. Urtasun — *Virtual*

RadarNet: Exploiting Radar for Robust Perception of Dynamic Objects — *ECCV20*
B. Yang, R. Guo, M. Liang, S. Casas, R. Urtasun — *Virtual*

StrObe: Streaming Object Detection from LiDAR Packets — *CoRL20*
D. Frossard, S. Suo, S. Casas, J. Tu, R. Hu, R. Urtasun — *Virtual*

The Importance of Prior Knowledge in Precise Multimodal Prediction — *IROS20*
S. Casas*, C. Gulino*, S. Suo*, R. Urtasun — *Virtual*

PnPNet: End-to-End Perception and Prediction with Tracking in the Loop — *CVPR20*
M. Liang, B. Yang, W. Zeng, Y. Chen, R. Hu, S. Casas, R. Urtasun — *Virtual*

SpAGNN: Spatially-Aware Graph Neural Networks for Relational Behavior Forecasting from Sensor Data — *ICRA20*
S. Casas, C. Gulino, R. Liao, R. Urtasun — *Virtual*

Discrete Residual Flow for Probabilistic Pedestrian Behavior Prediction — *CoRL20*
A. Jain*, S. Casas*, R. Liao, Y. Xiong, S. Feng, S. Segal, R. Urtasun — *Osaka, Japan*

End-to-end Interpretable Neural Motion Planner — *CVPR19*
W. Zeng, W. Luo, S. Suo, A. Saddat, B. Yang, S. Casas, R. Urtasun — *Long Beach, California*

IntentNet: Learning to Predict Intention from Raw Sensor Data — *CoRL18*
S. Casas, W. Luo, R. Urtasun — *Zurich, Switzerland*

* denotes equal contribution

Honors & Awards

2017 **Fundació Cellex Scholarship,** Excellence prize to carry out my bachelor's thesis in Toronto — *Barcelona, Spain*
2016 **SocialPoint's Recommender System Datathon,** Winner — *Barcelona, Spain*
2015 **McKinsey Atrévete,** Selected to participate in the prestigious strategy consulting workshop — *Lisbon, Portugal*
2014 **CFIS-UPC Scholarship,** Full ride for both bachelor degrees — *Barcelona, Spain*
2013 **CatalunyaCaixa Fellowship,** Top 100 grades at university entrance exams in Catalonia — *Barcelona, Spain*

Invited Talks

Computer Vision Reading Group @ EPFL — *Virtual*
Presented 4 of my papers on Joint Perception and Prediction to Prof. Alahi's group — *Oct. 2020*

All You Need To Know About Self-Driving Workshop @ CVPR20 — *Virtual*
Presenter for the tutorial on Prediction — *Jun. 2020*

Volunteering

Academic Service — *N/A*
Reviewer for ICML20, CoRL20, IROS20, NeurIPS20, ICRA21, CVPR21 — *2020 - Present*

Feeding Canadian Kids After School Program — *Toronto, Canada*
As part of Uber's Volunteering Program — *2019*

Forest restoration camp — *Lauriano, Italy*
International Civil Service — *Jul. 2014*

Basketball Referee — *Catalonia, Spain*
Federació Catalana de Basquetbol — *2010-2016*