

Xavier Puig

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Education

PhD in Electrical Engineering and Computer Science **Cambridge, MA**
Massachusetts Institute of Technology *2018-2021 (expected)*
Focus on Computer Vision and Machine Learning under the supervision of Prof. Antonio Torralba

MSc in Electrical Engineering and Computer Science **Cambridge, MA**
Massachusetts Institute of Technology *2016-2018*
Master Thesis: VirtualHome: Simulating Household Activities via Programs
Relevant coursework: Advanced Machine Learning, Advanced Computer Vision, Computational Cognitive Science GPA: 5.0/5.0

Double Degree in Telecommunications Engineering and Computer Science **Barcelona, Spain**
Universitat Politècnica de Catalunya *2011-2016*
Thesis: Frames in Places: Visual Common Sense Knowledge in Context
GPA Computer Science: 3.7/4.0, Rank 2/192
GPA Telecommunications Engineering: 3.6/4.0, Rank 2/66

Work Experience

Research Intern **Cambridge, MA**
Google, LLC *June 2019–August 2019*
Conducted research on combining hard negative mining methods with contrastive learning for unsupervised representation learning in images and videos, under the supervision of Dilip Krishnan.

SWE PhD Intern **Seattle, WA**
Google, LLC *June 2017–August 2017*
Conducted research under the Mobile Vision team, exploring adaptive computation neural networks for computer vision under the supervision of Li Zhang.

Research Assistant **Toronto, Canada**
University of Toronto *2015-2016*
Developed models for language and video alignment under the supervision of Prof. Sanja Fidler.

Research Assistant **Cambridge, MA**
Massachusetts Institute of Technology *2015-2016*
Built an image dataset and designed models for situation recognition in images under the supervision of Prof. Antonio Torralba.

Data Science Intern **Terrassa, Spain**
Synergic Partners *2015-2016*
Developed models in R to predict flight purchase propensity.

Refereed Publications

1. Xavier Puig, Tianmin Shu, Shuang Li, Zilin Wang, Yuan-Hong Liao, Joshua B. Tenenbaum, Sanja Fidler, and Antonio Torralba. Watch-and-help: A challenge for social perception and human-ai collaboration. In *International Conference on Learning Representations*, 2021. **Selected as Spotlight.**
2. Yuan-Hong Liao, Xavier Puig, Marko Boben, Antonio Torralba, and Sanja Fidler. Synthesizing environment-aware activities via activity sketches. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, pages 6291–6299, 2019
3. Bolei Zhou, Hang Zhao, Xavier Puig, Tete Xiao, Sanja Fidler, Adela Barriuso, and Antonio Torralba. Semantic understanding of scenes through the ade20k dataset. *International Journal of Computer Vision*, 127(3):302–321, 2019
4. Xavier Puig, Kevin Ra, Marko Boben, Jiaman Li, Tingwu Wang, Sanja Fidler, and Antonio Torralba. Virtualhome: Simulating household activities via programs. In *The IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, June 2018. **Selected as Oral.**
5. Bolei Zhou, Hang Zhao, Xavier Puig, Sanja Fidler, Adela Barriuso, and Antonio Torralba. Scene parsing through ade20k dataset. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, pages 633–641, 2017
6. Hang Zhao, Xavier Puig, Bolei Zhou, Sanja Fidler, and Antonio Torralba. Open vocabulary scene parsing. In *2017 IEEE International Conference on Computer Vision (ICCV)*, pages 2021–2029. IEEE, 2017

Non-Refereed Publications

1. Xavier Puig, Tianmin Shu, Shuang Li, Zilin Wang, Joshua B. Tenenbaum, Sanja Fidler, and Antonio Torralba. Watch-and-help: A challenge for social perception and human-ai collaboration, 2020 **Best paper award.**

Honors and Awards

La Caixa Fellowship Award

La Caixa Fellowship

Selected for a fellowship offering full funding for two years of doctoral program.

Barcelona, Spain

2016

CFIS Fellowship

Bachelor Thesis Fellowship

Selected for a fellowship partially funding one year stay for the bachelor thesis.

Barcelona, Spain

2015

National Olympiad in Informatics

Silver Medal

5th place in the Spanish National Olympiad in Informatics (2010, 2011) and 8th place in 2009.

Barcelona, Spain

2009–2011

Ibero-American Olympiad in Informatics

Bronze Medal

Online Olympiad in Informatics involving Ibero-American countries.

Barcelona, Spain

2009–2011

Invited Talks

Watch-And-Help: A Challenge on Social Perception and Human-AI Collaboration

ICLR 2021, Austria (Virtual)

October 2020

VirtualHome: Simulating Household Activities and Social Intelligence

UC Berkeley, Berkeley

March 2021

INRIA, Paris

November 2020

Harvard University, Cambridge

November 2020

Boston University, Boston

October 2020

New York University, New York

July 2020

VirtualHome: Simulating Household Activities via Programs

CVPR 2018, Salt Lake City

June 2018

Technical Skills

- **Programming Languages and Frameworks:** Proficient in: Python, Tensorflow, PyTorch, C++, Matlab, Javascript. Experience in Theano, Caffe, HTML, C#. Basic Knowledge in Prolog, Haskell.

Languages

- **Catalan:** Native Speaker
- **Spanish:** Native Speaker
- **English:** Proficient. 111 TOEFL iBT (2016) CAE-ESOL (2010).
- **French:** Advanced. DELF B2 (2011).

Professional Activities

- **Conference Reviewer:** CVPR 2019, 2020; ICCV 2019, 2021; ECCV 2020; NeurIPS 2020; TVCG; IROS 2021
- **MIT Vision Seminar:** Co-chair of the Computer Vision Seminar at MIT from 2018-2019 and Chair from 2019-current.
- **Robust Vision Challenge:** Co-organizer of the RVC 2020 workshop, held at ECCV'2020
- **Social Intelligence Workshop:** Main organizer of the Social Intelligence in Humans and Robots workshop, at ICRA 2021.
- **Social Intelligence Gathering:** Co-organizer of the Social Intelligence Virtual Gathering, at ICLR 2021.
- **Places Challenge 2017:** Co-organizer of the joint workshop for COCO and Places Challenges at ICCV 2017. With instance parsing, semantic boundary detection and scene parsing tracks
- **ILSVRC 2016 MIT Scene Parsing Challenge:** Co-organizer of the Scene Parsing Challenge at ILSVRC 2016