

# Xavier Puig

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## Education

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- PhD in Electrical Engineering and Computer Science** **Cambridge, MA**  
*Massachusetts Institute of Technology* 2018-2022 (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

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- 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

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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

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1. Ali Jahanian, Xavier Puig, Yonglong Tian, and Phillip Isola. Generative models as a data source for multiview representation learning. *arXiv preprint arXiv:2106.05258*, 2021
2. 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

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<b>La Caixa Fellowship Award</b> <i>La Caixa Fellowship</i> Selected for a fellowship offering full funding for two years of doctoral program.	<b>Barcelona, Spain</b> 2016
<b>CFIS Fellowship</b> <i>Bachelor Thesis Fellowship</i> Selected for a fellowship partially funding one year stay for the bachelor thesis.	<b>Barcelona, Spain</b> 2015
<b>National Olympiad in Informatics</b> <i>Silver Medal</i> 5th place in the Spanish National Olympiad in Informatics (2010, 2011) and 8th place in 2009.	<b>Barcelona, Spain</b> 2009–2011
<b>Ibero-American Olympiad in Informatics</b> <i>Bronze Medal</i> Online Olympiad in Informatics involving Ibero-American countries.	<b>Barcelona, Spain</b> 2009–2011

## Invited Talks

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<b>Watch-And-Help: A Challenge on Social Perception and Human-AI Collaboration</b> <i>ICLR 2021, Austria (Virtual)</i>	<i>October 2020</i>
<b>VirtualHome: Simulating Household Activities and Social Intelligence</b> <i>UC Berkeley, Berkeley</i>	<i>March 2021</i>

<i>INRIA, Paris</i>	<i>November 2020</i>
<i>Harvard University, Cambridge</i>	<i>November 2020</i>
<i>Boston University, Boston</i>	<i>October 2020</i>
<i>New York University, New York</i>	<i>July 2020</i>
<b>VirtualHome: Simulating Household Activities via Programs</b> <i>CVPR 2018, Salt Lake City</i>	<i>June 2018</i>

## Advised Students

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<i>Shawn Jain (M. Eng, MIT - Now at OpenAI)</i>	<i>September 2016 - June 2016</i>
<i>Zilin Wang (Undergraduate Student, ETH Zurich - Now at ICRC)</i>	<i>August 2019 - December 2019</i>
<i>Victor Luo (Undergraduate Student, MIT)</i>	<i>May 2020 - Current</i>
<i>Megan Wei (Undergraduate Student, MIT)</i>	<i>December 2020 - May 2021</i>
<i>Irene Huang (Undergraduate Student, MIT)</i>	<i>December 2020 - May 2021</i>
<i>Jordan Ren (Undergraduate Student, MIT)</i>	<i>December 2020 - Current</i>

## Technical Skills

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

## Languages

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

## Professional Activities

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- **Conference/Journal Reviewer:** CVPR 2018, 2020; ICCV 2019, 2021 (Outstanding Reviewer); ECCV 2020; NeurIPS 2020, 2021; TVCG; IROS 2021; IRJC 2021.
- **MIT Vision Seminar:** Co-chair of the Computer Vision Seminar at MIT from 2018-2019 and Chair from 2019-current.
- **Teaching Assistant:** Head Teaching Assistant for 6.869 Advances in Computer Vision on Spring 2019.
- **Robust Vision Challenge Workshop:** Co-organizer of the RVC 2020 workshop, held at ECCV 2020
- **Social Intelligence Workshop:** Lead 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