

# Fabien Baradel

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## Research Interests

Deep/Machine Learning, Computer Vision, Video Understanding, Visual Reasoning, Causal Inference

## Education

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|--|----------------------|--------------------------------|
| <b>INSA-Lyon</b>   | Lyon, France         | October 2016 - Present         |
| Ph.D., Computer Science  |                      |                                |
| – Thesis: <i>"Structured Deep Learning for Video Analysis"</i>                   |                      |                                |
| – Supervisors: Christian Wolf - Julien Mille                                     |                      |                                |
| – Expected defense: June 2020  |                      |                                |
| <br><b>ENSAI</b>   | <br>Rennes, France   | <br>September 2013 - June 2016 |
| M.Sc, Statistics & Computer Science  |                      |                                |
| – Suma Cum Laude (top of class) - High Honors                                    |                      |                                |
| – "Diplôme d'ingénieur" from the National School of Statistics and Data Analysis |                      |                                |
| <br><b>University of Warwick</b>   | <br>Coventry, UK     | <br>January 2015 - June 2015   |
| M.Sc, Statistics   |                      |                                |
| – Erasmus Mundus semester exchange (First-class honors)                          |                      |                                |
| <br><b>University of Paris Dauphine</b>  | <br>Paris, France    | <br>January 2015 - June 2015   |
| B.Sc, Applied Economics  |                      |                                |
| – Double agreement with ENSAI  |                      |                                |
| <br><b>University of Grenoble Alps</b>   | <br>Grenoble, France | <br>September 2010 - June 2013 |
| B.Sc, Applied Mathematics  |                      |                                |
| – Suma Cum Laude (top of class) - High Honors                                    |                      |                                |

## Work Experience

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|---|-----------------------|-------------------------------|
| <b>Google</b>   | Grenoble, France      | April 2019 - Present          |
| Student Researcher intern — Ganesha team  |                       |                               |
| – <i>"Self-supervised learning from video data"</i> advised by Cordelia Schmid and Chen Sun |                       |                               |
| – Learning without annotation from visual and audio signals from large-scale video datasets |                       |                               |
| <br><b>Simon Fraser University</b>  | <br>Vancouver, Canada | <br>February 2018 - June 2018 |
| Visiting researcher — Vision & Media Lab  |                       |                               |
| – <i>"Human-Object interaction in Videos"</i> advised by Greg Mori                          |                       |                               |
| <br><b>University of Guelph</b>   | <br>Guelph, Canada    | <br>Summer 2017               |
| Visiting researcher — Machine Learning Research Group                                       |                       |                               |
| – <i>"Trimmed Video Classification"</i> advised by Graham Taylor                            |                       |                               |
| <br><b>LIRIS</b>  | <br>Lyon, France      | <br>October 2016 - Present    |
| Doctoral Researcher — Imagine team  |                       |                               |
| – <i>"Deep Learning for Human Understanding"</i> advised by Christian Wolf and Julien Mille |                       |                               |

- Research on computer vision and machine learning with a focus on human activity recognition and video understanding. Animation of weekly group lecture meeting. Collaboration with N. Neverova (Research Scientist at Facebook Research AI).

**XRCE** Grenoble, France March 2016 - September 2016  
 Research Intern — Machine Learning for Services

- *Xerox Research Centre Europe (now NAVER Labs Europe)*
- "*Unsupervised domain adaptation for image recognition*" advised by Boris Chidlovskii and Gabriela Csurka

**LICIT - IFSTTAR** Lyon, France June 2015 - August 2015  
 Research Intern

- "*Machine Learning for road traffic forecasting*" advised by Romain Billot

## Conference Publications

1. **F. Baradel**, N. Neverova, J. Mille, G. Mori, C. Wolf. "CoPhy: Counterfactual Learning of Physical Dynamics", *The International Conference on Learning Representations (ICLR)*. 2020. **Spotlight**
2. **F. Baradel**, N. Neverova, C. Wolf, J. Mille, G. Mori. "Object Level Visual Reasoning in Videos", *The IEEE European Conference on Computer Vision (ECCV)*. 2018.
3. **F. Baradel**, C. Wolf, J. Mille. "Human Activity Recognition with Pose-driven Attention to RGB", *The British Machine Vision Conference (BMVC)*. 2018.
4. **F. Baradel**, C. Wolf, J. Mille, G. W. Taylor. "Glimpse Clouds: Human Activity Recognition from Unstructured Feature Points", *The IEEE Computer Vision and Pattern Recognition (CVPR)*. 2018.

## Workshop Publications

1. **F. Baradel**, C. Wolf, J. Mille. "Human Action Recognition: Pose-based Attention draws focus to Hands", *The IEEE International Conference on Computer Vision (ICCV), Workshop "Hands in Action"*. 2017.
2. G. Csurka, **F. Baradel**, B. Chidlovskii, S. Clinchant. "Discrepancy-based networks for unsupervised domain adaptation: a comparative study", *The IEEE International Conference on Computer Vision (ICCV), Workshop "Task-CV"*. 2017.

## ArXiv Preprints

1. C. Sun, **F. Baradel**, K. Murphy, C. Schmid. "Learning Video Representations using Contrastive Bidirectional Transformer", *arXiv:1906.05743*. 2019.
2. **F. Baradel**, C. Wolf, J. Mille. "Pose-conditioned Spatio-Temporal Attention for Human Action Recognition", *arXiv:1703.10106*. 2017.

## Patents

1. **F. Baradel**, B. Chidlovskii, G. Csurka. "Conditional adaptation network for image classification", *US Patent - 15450620*. 2017.

## Talks

- "Visual Reasoning in Videos", *GDR ISIS-IA "Reasoning from Visual Signal"*. October 2018.
- "Pose and Attention for Action Recognition", *GDR ISIS "Pose and Gesture"*. December 2017.

## Press Coverage

**CVPR Daily 2018**: "Glimpse Clouds for Human Activity Understanding".

## Teaching Experience

<b>Sciences-U</b> Lecturer	Lyon, France	2018-2019
– <i>Introduction to Machine Learning</i> - (M2) - (CM+TD+TP - 30h)		
<b>Univ. Lyon 1</b> Teaching Assistant	Lyon, France	Fall 2017
– <i>Regression modelling</i> - (M2 Data Science) - (TP - 12h)		
– <i>Probability &amp; Statistics</i> - (L2 Info & MathsEco) - (TP - 20h)		
<b>EPITA</b> Teaching Assistant	Lyon, France	September 2017
– <i>Mathematics</i> - (L1) - (CM+TD - 24h)		
<b>ENSAI</b> Seminar	Rennes, France	January 2017
– <i>Introduction to Deep Learning with Tensorflow</i> - (MSc Data Science) - (6h)		

## Awards and Honors

ANR/NSERC Ph.D. Fellowship - DeepVision project  
Erasmus Mundus exchange program scholarship

## Professional Services

**Conference reviewer:** ECCV 2020, CVPR 2019-2020, ICML 2019, NIPS 2018  
**Journal reviewer:** IJCV, TNNLS

## Computer Skills

Python, Java, SQL, PHP, R, SAS  
PyTorch, Tensorflow, FFMPEG, L<sup>A</sup>T<sub>E</sub>X, Linux, Mac, HTML, CSS