



# BERTRAND HIGBY

## Postdoctoral Fellow

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🌐 <http://bhigy.github.io>  
🐙 <https://github.com/bhigy>

### LANGUAGES



French	■ ■ ■ ■ ■
English	■ ■ ■ ■ □
Italian	■ ■ ■ ■ □
German	■ ■ □ □ □
Dutch	■ □ □ □ □

### PROGRAMMING



Python	■ ■ ■ ■ □
Shell scripting	■ ■ ■ ■ □
Pytorch	■ ■ ■ ■ □
Tensorflow	■ ■ ■ □ □
Kaldi	■ ■ ■ ■ □
HTK	■ ■ ■ ■ □
ESPnet	■ ■ ■ □ □
Git	■ ■ ■ □ □
Vim	■ ■ ■ ■ □
Arduino	■ ■ □ □ □

### INTERESTS



Hiking, Board Games, Books

### Education

### Professional experience



**Postdoctoral fellow**, 06/19 - 07/21  
Tilburg University, Tilburg, Netherlands

Subject: Understanding visually grounded spoken language via multi-tasking  
Principal Investigators: Grzegorz Chrupala, Afra Alishahi

**PhD student**, 11/15 - 04/19  
Istituto Italiano di Tecnologia, Genoa, Italy

Subject: Spoken command recognition for robotics  
Supervisors: Giorgio Metta, Leonardo Badino

**Visiting student**, 04/18 - 07/18  
Centre for Speech Technology Research, Edinburgh, UK  
Supervisor: Peter Bell

**Research Assistant**, 05/15 - 10/15  
Istituto Italiano di Tecnologia, Genoa, Italy

Subject: Haptic object recognition for the robot iCub  
Supervisor: Lorenzo Natale

**Software engineer**, 12/10 - 04/15  
Abase Europe, Strasbourg, France

Technologies: SAP, ABAP, C#, Java, HTML, Javascript, JQuery

**Master degree in Cognitive Sciences**, 09/08 - 06/10  
Université Lumières, Lyon, France

First in my class

1st year internship under the supervision of Emmanuel Reynaud on  
Connectionist modeling of multimodal integration

2nd year internship under the supervision of Salima Hassas on  
Collective representations, language and tagging systems

**Teaching assistant in Computer Science**, 09/09 - 01/10  
Université Lumières, Lyon, France

**Bachelor degree in Psychology**, 09/05 - 06/08  
Université Louis Pasteur, Strasbourg, France


**Experimental assistant**, 01/08 - 04/08  
Laboratoire d'Imagerie et Neurosciences Cognitives (LINC), Strasbourg, France


EEG study on sleep and attention


**Bachelor degree in Computer Science**, 09/03 - 06/06  
Université Louis Pasteur, Strasbourg, France

First in my class

## Publications

**Higy, B., Gelderloos, L., Alishahi, A., & Chrupala, G. "Discrete representations in neural models of spoken language".** <http://arxiv.org/abs/2105.05582>, 2021. 


**Higy, B., Elliott, D., & Chrupala, G. "Textual Supervision for Visually Grounded Spoken Language Understanding".** Findings of the Association for Computational Linguistics: EMNLP 2020, 2698–2709. 

Chrupala, G., **Higy, B.**, & Alishahi, A. “**Analyzing Analytical Methods: The Case of Phonology in Neural Models of Spoken Language**”. In Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics. Seattle, WA, USA, 2020. 

**Higy, B.**, & Bell, P. “**Few-shot learning with attention-based sequence-to-sequence models**”. <http://arxiv.org/abs/1811.03519>, 2018. 

**Higy, B., Mereta, A., Metta, G., & Badino, L. “Speech Recognition for the ICub Platform”.** Frontiers in Robotics and AI 5, 2018. 

Savran, A., Tavarone, R., **Higy, B.**, Badino, L., & Bartolozzi, C. “**Energy and Computation Efficient Audio-Visual Voice Activity Detection Driven by Event-Cameras**”. In Proceedings of 13th IEEE International Conference on Automatic Face Gesture Recognition. Xi'an, China, 2018. 

**Higy, B.**, Ciliberto, C., Rosasco, L., & Natale, L. “**Combining Sensory Modalities and Exploratory Procedures to Improve Haptic Object Recognition in Robotics**”. In IEEE-RAS 16th International Conference on Humanoid Robots (Humanoids), 117–24. Cancun, Mexico, 2016. 

## Theses

**Higy, B. "Spoken command recognition for robotics".** PhD thesis. Università degli studi di Genova, 2019. 

**Higy, B. “Collective representations, language and tagging systems”.** MA 2<sup>nd</sup> year thesis (in French), 2010. 

**Higy, B. “Connectionist modeling of multimodal integration”.** MA 1<sup>st</sup> year thesis (in French), 2009. 



## Teaching and supervision experience

### Master's thesis supervision, Fall 2020

Tilburg University, supervision of thesis students for the Master's program in Data Science and Society

### Deep learning, Fall 2019

Tilburg University, teaching assistant, designed and supervised practical sessions

### Computer Science, Fall 2009

University Lyon 2, teaching assistant, supervised practical sessions



## Dissemination

Lightning talk at ATILA'19 conference on the topic “Understanding visually grounded spoken language via multi-tasking”



## Honors

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Merit scholarship from the French Ministry of Education, 2006-2010 (1800€/school year)

Higher education scholarship open to the 20% most successful students.

Higher education scholarship from the Foundation François Schneider Wattwiller, 2003 (2000€)

Scholarship to support students willing to pursue higher education.



## Research Interests

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- Spoken and Natural language processing
- Interpretability of neural networks
- Computational modeling of language acquisition
- Language grounding and multimodal learning
- Developmental robotics.



## Professional activities and Society memberships

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**Reviewer** for ACL, EMNLP, EACL, NAACL, CoNLL.

### Memberships

Association for Computational Linguistics (ACL)

Cognitive Science Society (CogSci)

**Co-organizer** of the Zero Resource Speech Challenge, edition 2021. 

**Co-organizer** of the Colleague Colloquium Series, informal talks within the Department of Cognitive Science and Artificial Intelligence at Tilburg University.



## Training

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### Introduction to convex optimization, 2018

Taught by Saverio Salzo and Silvia Villa, at University of Genoa, Italy

### Barcelona Cognition, Brain and Technology summer school, 2017

in Barcelona, Spain

### International Summit and Summer School on Deep Learning 2017

in Bilbao, Spain

### Artificial Cognitive Systems, 2017

Taught by David Vernon, at the Italian Institute of Technology

### RegML 2016

Regularization Methods for Machine Learning

Taught by Prof. Lorenzo Rosasco, at University of Genoa, Italy

### Brains, Minds and Machines Workshop, 2016

in Sestri Levante, Italy

### MLCC 2015

A Machine Learning Crash Course

Taught by Prof. Francesca Odone and Lorenzo Rosasco, at University of Genoa, Italy