

# jonasdegrave

PHD Researcher

## contact

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github.com/317070  
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## languages

**Dutch**

mother tongue

**English**

near-native (C2)

**French**

professional (C1)

**German, Chinese**

basic (A2)

## programming

I ♥ Python, Java & C

I have **XP** with PHP,  
Shell, Javascript, C++,  
C#, TeX, ASM,  
Redcode, Ruby, Lua,  
SQL, Delphi & Basic

## platforms

Linux, Theano,  
Lasagne, Apache,  
PostgreSQL, Drupal,  
Django, CSS3, HTML5,  
jQuery, MPLab X

## experience

- 2014–Now **Agency for Innovation by Science and Technology in Flanders** Ghent University, Belgium  
Phd researcher  
Researching new approaches for adding prior information into deep learning frameworks, by writing new differentiable functions which empower the neural networks to learn new tasks. This with a focus on improving the interaction between a deep learning algorithm and the world, such as is the case in robotics. A secondary focus is to develop more robust controllers which could transfer knowledge from simulation to real-world processes.
- 2012–2013 **AMARSi, European Community's FP7** Ghent University, Belgium  
Phd researcher  
Developing, testing and debugging both hardware, firmware and software of the compliant quadrupedal robot, 'Oncilla'. Developing machine learning algorithms to teach it how to walk.

## education

- 2010–2012 **Masters of Science** in Electrical Engineering Ghent University, Belgium  
With a specialization in information and communication technology and a focus on media and machine learning. I graduated on exploring whether a robot learns to run faster when it starts the learning process with an easier morphology.
- 2011 **Masters of Science** in Informatics Institut Polytechnique de Grenoble, France  
Erasmus experience in order to further specialize in graphics, vision and robotics
- 2007–2010 **Bachelor of Science** in Electrical Engineering Ghent University, Belgium

## awards

- 2016 **Kaggle's Second Data Science Bowl** National Heart, Lung, and Blood Institute, USA  
Awarded \$50,000 to the team for developing the second best algorithm to measure the ventricle size in 4D MRI-data of the heart.
- 2015 **Kaggle's National Data Science Bowl** Oregon State University, USA  
Awarded \$100,000 to the team for developing the best algorithm to classify images of plankton.
- 2009 **Marianne De Leenheer Prize** Ghent University, Belgium  
Awarded € 1,250 to promote creativity in math, for solving the open Blacksburg Middle School problem in SIAM's Problems and Solutions.
- 2007 **First prize Geography Derby of the Low Countries** Texel, Netherlands  
Awarded €250 on the written test in a competition between the best geography students in Flanders and the Netherlands
- 2005–2007 **7 times finalist in science Olympiads Flanders** Brussels, Belgium  
Finished 7 times among the top 15 students for the Olympiads in mathematics, chemistry, physics and geography.

## publications

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I have authored 3 journal articles (of which 2 are under review) and 6 first author conference papers (1 under review). I included a selection of my publications underneath. You may find a complete list of my publications on [biblio.ugent.be/person/000070398859](http://biblio.ugent.be/person/000070398859).

### article in journal

Transfer learning of gaits on a quadrupedal robot

Jonas Degraeve, Michaël Burm, Pieter-Jan Kindermans, Joni Dambre, Francis wyffels  
Adaptive Behavior. Sage, 2015

### invited talk

Data Science for Social Good: How the Data Science Bowl Advanced the Field of Deep Learning and Ocean Science

Jonas Degraeve  
IEEE Data Science and Advanced Analytics conference (DSAA), 2015

### international conferences

A Differentiable Physics Engine for Deep Learning in Robotics

Jonas Degraeve, Michiel Hermans, Joni Dambre, Francis wyffels  
International Conference on Learning Representations (ICLR) [under review], 2017, Toulon, France

Spatial Chirp-Z Transformer Networks

Jonas Degraeve, Sander Dieleman, Joni Dambre, Francis wyffels  
the European Symposium on Artificial Neural Networks (ESANN), 2016, Bruges, Belgium

Developing an Embodied Gait on a Compliant Quadrupedal Robot

Jonas Degraeve, Ken Caluwaerts, Joni Dambre, Francis wyffels  
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2015, Hamburg, Germany

## achievements

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|-----------|---|--------------------|
| 2015      | <b>LSD Neural Net artwork</b>   | Trbovlje, Slovenia |
|           | Exposition of my artwork based on artificial neural networks at the international new media festival 'Speculum Artium'. The work received critical acclaim from global media such as the New Scientist, The Guardian and Der Spiegel. I have also been invited to give talks on AI and art in both Brussels and Helsinki museums. |                    |
| 2012–2014 | <b>Co-President Pirate Party Belgium</b>  | Belgium            |
|           | I was co-president of the Belgian section of the Pirate Party. I led the party to the 2012 and 2014 elections. When I left, the polls gave a voting intention of 1.4% for the party.  |                    |

## interests

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**professional:** robotics, deep learning, reinforcement learning, machine learning, transfer learning, media processing, data mining, software development

**personal:** politics, the science of cooking, board games, producing music, running