

Agathe Balayn

Curriculum Vitae

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Education

- 04/2019 - **PhD in Computer Science**, *Delft University of Technology*, The Netherlands.
now
 - Privacy-aware crowd computing and machine learning in edge and distributed settings.
 - Work with the company Cognizant.
- 09/2016 - **MSc in Computer Science. Data Science and Technology track**, *Delft University of Technology*, The Netherlands, **GPA: 8.72/10, 9/10 for the thesis project**.
09/2018
 - Focus on Artificial Intelligence, Machine and Deep Learning, Human-Computer Interaction.
 - Completion of the Honours Programme of the university (additional 20 ECTS).
- 09/2014 - **MSc in Embedded Systems**, *ENSTA ParisTech (Top French Grande École, graduate school in Engineering)*, France, (Program leading to a "Diplôme d'ingénieur").
09/2018
 - Strong component of Control, Informatics and Signal.
 - Graduated first year 2nd of the class out of 144 students. **GPA: 4.0/4.0**.
- 2012-2014 **Preparatory class**, *Lycée du Parc*, France, 2 years of intensive undergraduate program (Mathematics, Physics, Engineering Sciences) preparing for the national competitive entrance examination to graduate schools in engineering.

Professional experiences

- 09/2018 - **Researcher at the IBM Center for Advanced Studies and at the TU Delft**, *the Netherlands*,
now
 - Investigation of the fairness of Machine Learning pipelines.
 - Experimentations and writing of scientific publications and of a literature survey.
 - Contribution to the IBM Research toolkit *AI Fairness 360* with newly designed metrics.
- 11/2017 - **Graduate Intern at IBM Benelux (Master's thesis)**, *Center for Advanced Studies (CAS)*,
09/2018 *Amsterdam, the Netherlands*, Study of biases and fairness in crowdsourced data and Machine Learning models for the prediction of subjective properties, with the use-case of sentence toxicity prediction.
 - Design and implementation of a new fairness metric. Experiments on crowdsourcing techniques for training dataset collection, and on Machine and Deep Learning models for fairer predictions.
 - Publication at the CrowdBias workshop of HCOMP2018.
- 08/2017 - **Research Intern at the Honda Research Institute (HRI-JP)**, *Wako, Japan*.
10/2017
 - Creation of encoding schemes for sign language annotations. Design, implementation and evaluation of Deep Learning models (mainly RNN, LSTM neural networks) for Japanese sign language synthesis and recognition based on Kinect and motion capture data.
 - Publication at RO-MAN 2018.
- 05/2016 - **Research Assistant at the Research Institute for Cognition and Robotics (CoR-Lab)**, *Bielefeld University, Germany*.
07/2016
 - Design, implementation and evaluation of an active-compliance control mode using ELM neural networks and model-space learners for an industrial lightweight robotic arm (Universal Robots UR5), able to cope with unknown weights at the end-effector.
 - Publication at SIMPAR 2016.
 - Obtained one individual scholarship, based on merit (Erasmus Plus).
- 08/2015 **Summer trainee at the company Hakuba Lion Adventure**, *Hakuba, Japan*.
Accompanied groups of tourists to outdoor activities (canyoning, kayaking, basic ski lessons), set up air balloons, barista. Entirely Japanese-speaking team.

Publications

Balayn, Agathe, et al. "Data-driven development of Virtual Sign Language Communication Agents." *Robot and Human Interactive Communication (RO-MAN), IEEE International Symposium on*. IEEE, 2018.

Balayn, A. "On the fairness of crowdsourced training data and Machine Learning models for the prediction of subjective properties. The case of sentence toxicity: To be or not to be #\$\$%! toxic? To be or not to be fair?." Master thesis, TU Delft repository, 2018.

Balayn, Agathe, et al. "Characterising and Mitigating Aggregation-Bias in Crowdsourced Toxicity Annotations." *CrowdBias workshop co-located with Human Computation and Crowdsourcing (HCOMP2018), AAAI Conference on*. AIII, 2018.

Balayn, Agathe, et al. "Adaptive handling assistance for industrial lightweight robots in simulation." *Simulation, Modeling, and Programming for Autonomous Robots (SIMPAN), IEEE International Conference on*. IEEE, 2016.

Organizational responsibilities

2014-2016 **Treasurer and member of the ENSTA ParisTech Robotics Club.**

- Management of the financial resources of the association.
- Prepared (mainly programming) autonomous robots. Participated to the French Cup of Robotics.

2014-2016 **Management, company relation and communication roles.**

- **Member of a European engineering students' organization** Board of European Students of Technology. Organized a trip to Paris Air Show for 50 German students. Raised funds for company days.
- **Communication manager of ENSTA ParisTech Art Festival.** Organized the advertisement (online and on-site) of the festival.

2015-2016 **Tutor at the organization ZUPdeCO.**

Tutoring of students (10-15 y.o) with learning difficulties, from the underprivileged neighborhoods.

2010-2012 **Volunteer for the Non-Governmental Organization Les Enfants Du Mékong.**

Technical Skills

Programming *Most experienced with:* **Python** (TensorFlow, Keras, Scikit-learn), **MATLAB**, **C++** (OROCOS, languages Gazebo simulation environment).

Some experience with: **C**, **Java**, **Maple**. **HTML**, **CSS**, **PHP**, **Javascript** (D3 library).

Basic knowledge of: **Prolog**, **OCaml**.

Others **Working knowledge of Linux**, **Git**, **common software suites (Office)**, **LaTeX**.

Languages

French **Native speaker**

German **Intermediate**

English **Fluent. 108/120 at the TOEFL test.**

Japanese **Intermediate**

Chinese **Intermediate**

Miscellaneous

- Hobbies
- Badminton: students' competition. Bouldering and climbing.
 - Flute: ten years, university orchestra and jazz band. Lindy hop dance: classes at university.
 - Philosophy: epistemology courses. Art: minor in modern art for the high-school diploma.
 - Travels with an interest for Asian countries.
 - China: in 2011, 6-week stay, Chinese classes and visit of a Chinese high-school.
 - Singapore: in 2013, 1-month English classes.
 - Japan: 1-month Japanese classes. 4-month company internship.