

Xavier Valcarce

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Interests

Quantum Information Theory, Quantum Computing and Communication, Machine Learning, Numerical Analysis

Experiences

Sept. 2018 to present **Research Assistant** at *Quantum Optics Theory Group (Nicolas Sangouard)*, University of Basel (Basel, Switzerland)

Publications:

- [What is the minimum CHSH score certifying that a state resembles the singlet?](#)
arXiv:1910.04606

Talks & Conferences:

- DPG 2019 (Freiburg, DE) - Talk given on Device-independent certification of an elementary quantum network
- Quantum Information 2019 (Benasque, ES) - Talk given about my Master Thesis
- 8th NCCR QSIT Winter School (Arosa, CH)

Teaching:

- Quantum Information Theory (FS 2019)
- Physics 4 - Introduction to quantum information and quantum optics (SS 2019)
- Quantum Information and Computation (FS 2018)

Apr. 2018 to Sept. 2018 **Master Thesis** at *Quantum Information Theory Group (Antonio Acin)*, ICFO (Barcelona, Spain)

Master thesis project on *Machine Learning for Nonlocality Detection in Multipartite System* under the supervision of Joseph Bowles, Gabriel Senno and Antonio Acin.

Publication : [thesis available here](#)

Jun. 2017 to Jul. 2017 **Master Project** at *Quantum Correlations Group (Nicolas Brunner)*, University of Geneva, (Geneva, Switzerland)

Summer internship on *Semi-Device Independent Quantum Random Number Generator*, under the supervision of Jonatan Bohr Brask and Nicolas Brunner.

Publication : [internship report available here](#)

Education

2016 to 2018 **Master in Subatomic Physics**, pass with merit Claude Bernard University, Lyon, France

2013 to 2016 **Bachelor in Physics**, pass with merit Claude Bernard University, Lyon, France
Erasmus+ (FS 2015), University of Oulu, Oulu, Finland

Technical Skills and Knowledge

- **Physics:**
 - Quantum Information, Quantum Mechanics, Quantum Optics
 - Particle Physics, Nuclear Physics, Standard Model
- **Programming:**
 - Python : Optimization (SDP, LP, ...), machine learning (Pytorch), numerical analysis
 - Julia : Optimization (SDP, LP, ...), numerical analysis
 - Mathematica
 - Bash : scripting, software developpement
 - C++
 - Latex, Markdown, HTML/CSS, ...