

Education

- 2017–2020 **Doctorate program**, *LKB (ENS)*, with Pr. Sylvain Gigan and Pr. Florent Krzakala, research in computational imaging and machine learning.
- 2016–2017 **Predoctoral program**, *PSL-ITI*, cross-displinary scientific courses, experience in innovation and entrepreneurship.
- 2014–2016 **Master of Science in physics**, *ENS-ICFP*, with highest honors, Quantum Mechanics specialty.
- 2013–2014 **Bachelor of Science in physics**, *ENS*, with highest honors.
- 2011–2013 **Preparatory classes MP***, *Lycée Louis-le-Grand*.
- 2008–2011 **High school**, *Lycée Louis-le-Grand*, with highest honors.

Experience

- 2017–2019 **Consulting mission** at LightOn, a start-up developing an optical computing platform for machine learning algorithms.
- 2018 **Teaching Assistant** at Université Paris 1 Panthéon-Sorbonne in "Applied statistics" for economics undergraduates.
- 2017 **Business internship** at LightOn (five months).
Main activities: optical prototyping, machine learning bibliography, applications for startup competitions
- 2016 **Research internship** with Pr. Sylvain Gigan at Laboratoire Kastler-Brossel, ENS, Paris (five months), on optical computing.
Keywords: Recurrent Neural Networks, multiple light scattering, optical computing
- 2015 **Research internship** with Pr. Laura Waller at UC Berkeley, California (five months), on computational imaging.
Keywords: non-linear optimization, gradient descent acceleration, Fourier Ptychographic Microscopy, computational imaging
- 2014 **Short research internship** with Pr. Sylvain Gigan at Laboratoire Kastler-Brossel, ENS, Paris (one-month).
Keywords: Adaptive Optics, Optical Coherence Tomography

Publications

Optical Computing for Machine Learning

- M. Rafayelyan, **J. Dong**, Y. Tan, F. Krzakala, S. Gigan (2020). *Large-Scale Optical Reservoir Computing for Spatiotemporal Chaotic Systems Prediction*. arXiv preprint arXiv:2001.09131.
- R. Ohana, J. Wacker, **J. Dong**, et al (2019). *Kernel computations from large-scale random features obtained by Optical Processing Units*. IEEE ICASSP 2020.
Cited by 1
- **J. Dong**, M. Rafayelyan, F. Krzakala, S. Gigan (2019). *Optical Reservoir Computing using multiple light scattering for chaotic systems prediction*. IEEE Journal of Selected Topics in Quantum Electronics, 26(1), 1-12.
Cited by 5

- **J. Dong**, S. Gigan, F. Krzakala, G. Wainrib (2018). *Scaling up Echo-State Networks with multiple light scattering*. In 2018 IEEE Statistical Signal Processing Workshop (SSP) (pp. 448-452). IEEE.
Cited by 11

Imaging in complex media

- A. Boniface, B. Blochet, **J. Dong**, S. Gigan (2019). *Non-invasive light focusing in scattering media using speckle variance optimization*. Optica Vol. 6, Issue 11, pp. 1381-1385.
Cited by 1
- **J. Dong**, F. Krzakala, S. Gigan (2019). *Spectral Method for Multiplexed Phase Retrieval and Application in Optical Imaging in Complex Media*. In ICASSP 2019-2019 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) (pp. 4963-4967). IEEE.
- T. Wu, **J. Dong**, X. Shao, S. Gigan (2017). *Imaging through a thin scattering layer and jointly retrieving the point-spread-function using phase-diversity*. Optics Express, 25(22), 27182-27194.
Cited by 20

Computational imaging

- F. Soldevila, **J. Dong**, et al (2019). *Fast compressive Raman bio-imaging via matrix completion*. Optica, 6(3), 341-346. Featured in <https://www.sciencedaily.com/releases/2019/03/190314101323.htm>
Cited by 3
- L. H. Yeh, **J. Dong**, et al (2015). *Experimental robustness of Fourier ptychography phase retrieval algorithms*. Optics Express, 23(26), 33214-33240.
Cited by 145

Academic achievements

- 2012 **Silver medal at the International Physics Olympiad** in Tallinn, Estonia (2nd of a French delegation of 5).
- 2011 **Bronze medal at the International Mathematical Olympiad** in Amsterdam, Netherlands (2nd of a French delegation of 6).
- 2011 **2nd Prize in Mathematics at the "Concours Général"**, a prestigious national competition.
- 2011 **1st place** at "Le Concours Kangourou", a national math competition.
- 2011 **1st prize** at "Olympiades de Physique France", a national physics competition, with a group project on solar sails and the measure of the radiation pressure.
- 2010 3rd place at "Le Concours Kangourou".
- 2009 3rd place at "Le Concours Kangourou".

Languages

French	Native speaker	Python	Fluent (in scikit-learn, Pytorch)
English	Fluent	MATLAB	Fluent
Chinese	Intermediate	Familiar with	C/C++, Caml, HTML/CSS/PHP

Other experiences

Reviewer for scientific journals (Optics Communications 4, Optics Express 4, Optics Letters 4, IEEE JSTQE 1, IEEE TCI 3, Physical Review Letters 5).

2009: "Diplôme d'Études Musicales" in violin (semi-professional degree).

Experience in orchestras (with tours in China and Bulgaria) and small ensembles.

List of presentations at conferences

- 2019/12 ERC International Workshop "Photonic Reservoir Computing and Information Processing in Complex Network", in Trento, Italy (oral)
- 2019/10 Face2Phase conference, in Delft, Netherlands (poster)
- 2019/08 Complex nanophotonics Science Camp, in Windsor Great Park, UK (poster)
- 2019/05 IEEE International Conference on Acoustics, Speech, and Signal Processing, in Brighton, UK (poster)
- 2019/02 SPIE Photonics West, in San Francisco, USA (2 posters)
- 2018/08 Summer school "Statistical Physics and Machine Learning back together", in Cargèse, France (poster)
- 2018/06 IEEE Statistical Signal Processing Workshop, in Freiburg, Germany (poster)
- 2018/06 Gordon Research Conference on "Image Science", in Boston, USA (poster)
- 2018/05 Workshop "Optics for information processing in the 21th century", in Florence, Italy (poster)
- 2018/05 Summer school "Transport, Mesoscopy and Imaging in Complex Media", in Cargèse, France (poster)
- 2018/04 SPIE Photonics Europe, in Strasbourg, France (oral)