

# Xuedong Shang

## Curriculum Vitae

### Education

- 2017–2021 **PhD in Computer Science**, *Inria*, France.  
My PhD research focuses on sequential decision making with/without side information. In particular, I'm interested in online learning with partial feedback, a.k.a. multi-armed bandits (a particular case of reinforcement learning) and its applications. Typical applications include recommendation systems, portfolio management, hyper-parameter optimisation for machine/deep learning algorithms, etc. Also interested in (deep) reinforcement learning, time series prediction/clustering, optimal transport for natural language processing, etc.
- 2015–2017 **Master of Computer Science**, *ancien élève de l'École normale supérieure de Cachan (Rennes Campus)*, France.  
machine learning & related applications (cv, nlp, signal processing, etc.), distributed computing, cloud computing and big data, advanced algorithmics, parallel programming, artificial intelligence, intro to statistical learning, operating systems, databases, bioinformatics, signal processing, information theory, principles of computer network
- 2014–2015 **Bachelor of Computer Science**, *ancien élève de l'École normale supérieure de Cachan (Rennes Campus)*, France.  
algorithmics, theory of computing, object-oriented programming, functional programming, computer architectures and systems, cryptography, image processing, intro to computer network
- 2013–2014 **Gap Year**, *engaged with volunteer work*, AOE.  
EduInfinity, a subtitle translation group for MOOC courses
- 2012–2013 **Bachelor of Mathematics**, *Université Pierre et Marie Curie (Paris VI)*, France.  
probability & statistics, measure theory, topology, differential calculus, complex analysis, stochastic process, numerical analysis, abstract algebra
- 2008–2011 **Mathematical Preparatory Class**, *Lycée Henri Poincaré*, Nancy, France.  
post-secondary preparatory classes preparing for highly selective entrance examinations to the French Grandes Ecoles, including intense courses on mathematics, physics, chemistry, computer science and philosophy
- 2005–2008 **High School**, *High School Affiliated to Fudan University*, Shanghai, China.

### Training

- July 2019 **Reinforcement Learning Summer School**, Lille, France.  
stochastic bandits, structured bandits, bandits for optimization, recommender systems, basic statistics, neural networks, Markov decision process, intro to RL, RL for healthcare, policy gradient, RL for energy, RL good practice, deep RL, exploration in RL, RL for video games, safe RL, Monte Carlo tree search, multi-agent learning, RL for neuroscience, robotics

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Jan 2019 **Machine Learning Summer School**, Stellenbosch, South Africa.  
probabilistic thinking, variational inference, causality, deep generative models, kernel methods, reinforcement learning, optimal transport, Gaussian processes, causal inference, dynamic interaction networks, machine learning for conservation, statistical relational learning and probabilistic (logic) programming, Markov chain Monte Carlo, data compression, etc.

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## Publications

### Conference Papers

- ICML 2020 **Gamification of pure exploration for linear bandits**, in Proceedings of the 37th International Conference on Machine Learning.  
Rémy Degenne, Pierre Ménard, **Xuedong Shang** and Michal Valko
- AIStats 2020 **Fixed-confidence guarantee for Bayesian best-arm identification**, in Proceedings of the 23rd International Conference on Artificial Intelligence and Statistics, Palermo, Italy.  
**Xuedong Shang**, Rianne de Heide, Emilie Kaufmann, Pierre Ménard and Michal Valko
- ALT 2019 **General parallel optimization without metric**, in Proceedings of the 30th International Conference on Algorithmic Theory, Chicago, USA.  
**Xuedong Shang**, Emilie Kaufmann and Michal Valko

### Software

- GitHub **rlberry - A reinforcement learning library for research and education**.  
Repository Omar Darwiche Domingues, Yannis Flet-Berliac, Edouard Leurent, Pierre Ménard, **Xuedong Shang**

### Workshop Papers

- ICML 2019 - **A simple dynamic bandit algorithm for hyper-parameter tuning**, in 6th ICML AutoML Workshop on Automated Machine Learning, Long Beach, USA.  
**Xuedong Shang**, Emilie Kaufmann and Michal Valko
- EWRL 2018 **Adaptive black-box optimization got easier: HCT only needs local smoothness**, in 14th European Workshop on Reinforcement Learning, Lille, France.  
**Xuedong Shang**, Emilie Kaufmann and Michal Valko

### Preprints

**Stochastic bandits with vector losses: Minimizing  $\ell^\infty$ -norm of relative losses**, submitted.

**Xuedong Shang**, Han Shao and Jian Qian

**Simple (dynamic) algorithms for hyper-parameter optimization**.

**Xuedong Shang**, Emilie Kaufmann and Michal Valko

**Time series clustering**.

Dominique Barbe, Alexandre Debant and **Xuedong Shang**

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## Experience

### Vocational

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October **PhD Candidate**, *Sequel, Inria Lille-Nord Europe*, Lille, France.  
 2017–March Adaptive Methods for Optimization in Stochastic Environments, under the supervision of  
 2021 Emilie Kaufmann & Michal Valko

March **Research Engineer**, *Noah Ark's Lab*, Paris, France.  
 2020–August Worked on automated machine learning, in particular hyper-parameter optimization and  
 2020 safe linear bandits, working with Balázs Kégl and Igor Colin

February **Research Internship**, *Sequel, Inria Lille-Nord Europe*, Lille, France.  
 2017–July Hierarchical Bandits for "Black Box" Optimisation and The Monte-Carlo Tree Search, under  
 2017 the supervision of Emilie Kaufmann & Michal Valko

May **Research Internship**, *Yamamoto-Cuturi Lab., Graduate School of Informatics*,  
 2016–July *Kyoto University*, Kyoto, Japan.  
 2016 Optimal Transport Geometry for Sentiment Analysis, under the supervision of Marco Cuturi

May **Research Internship**, *Magnet, Inria Lille-Nord Europe*, Lille, France.  
 2015–July Personalized Recommender System, under the supervision of Marc Tommasi  
 2015

June **Research Internship**, *CNRS Vérimag*, Grenoble, France.  
 2012–July On the Generation of Positivstellensatz Witnesses in Degenerate Cases, under the  
 2012 supervision of David Monniaux

### Others

May **Secretary-General**, *Union des étudiants et chercheurs chinois à Lille (UCECL)*,  
 2019–May Lille, France.  
 2020

June **Member**, *Publicity Department, Union des étudiants et chercheurs chinois à Lille*  
 2018–May *(UCECL)*, Lille, France.  
 2019

July **Summer Internship**, *Corporate Banking Department, Industrial and Commercial*  
 2013–August *Bank of China*, Shanghai, China.  
 2013

August 2012 **Summer Internship**, *International Business Department, Agricultural Bank of*  
*China*, Shanghai, China.

### Computer skills

Programming languages	C, C++, C#, Objective-C, Swift, Java, Python, Julia, Ruby, R, OCaml, Kotlin, Golang, Bash	Web	HTML5/CSS3, SQL, JavaScript
Operating systems	Linux, Windows, Mac OS	Numerical	Maple, Matlab/Octave
Machine learning	scikit-learn, PyTorch, Theano	Toolkits	L <sup>A</sup> T <sub>E</sub> X, Git, SVN, Vim, Emacs
Data Science	Jupyter Notebook, pandas, Big-Query, seaborn	Finance	Bloomberg Terminal

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## Services

**NIPS 2017**, External Reviewer.

**NeurIPS 2019\***, **2020\*\***, Reviewer.

**ICML 2018, 2019**, External Reviewer.

**ICML 2021**, Reviewer.

**AISTATS 2019**, External Reviewer.

**ICLR 2021, ICLR 2019 Workshop LLD**, Reviewer.

**RLSS 2019**, Organization Committee, Teaching Assistant.

\* - top reviewer, \*\* - best reviewer

## Languages

English	Full Professional Proficiency	TOEIC 925
French	Native/Bilingual Proficiency	
Chinese	Mother Tongue	
Mandarin		
Chinese	Mother Tongue	
Shanghainese		
Japanese	Limited Working Proficiency	
Spanish	Limited Working Proficiency	

## Interests

Academic	Maths, Finance, Neuroscience, e-Education
Sports	Football, Basketball, Ski, Cycling, Bouldering
Arts	Piano

## Extra

Eduinfinity	Team leader on computer science courses	<i>A translation group providing chinese subtitles for courses on Coursera.org, edX.org, etc</i>
Wikipedia	Wikipedian in English, French, Chinese and Japanese	
Unef	Foreign student candidate at ENS	<i>National union of students of France</i>

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