

# Rémi Leluc, PhD

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## Research Experience

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**École Polytechnique (CMAP)** (Institut Polytechnique de Paris, France) *Apr. 2023 - present*  
*Postdoctoral Researcher* with [Aymeric Dieuleveut](#), working on Federated Learning. Publications in international peer reviewed conferences, Mentoring of PhD students.

**Télécom Paris** (Institut Polytechnique de Paris, France) *Oct. 2019 - Mar. 2023*  
Working towards a PhD in applied mathematics in the S2A team under the supervision of [François Portier](#) and [Pascal Bianchi](#). Publications in international peer reviewed conferences and journals (NeurIPS, ICML, JMLR, TMLR). Teaching assistant for graduate level students.

**TotalEnergies OneTech** (Palaiseau, France) *Oct. 2021 - Apr. 2022*  
*Artificial Intelligence Researcher* within the DataAI team of Sébastien Gourvénec.  
Study and design Reinforcement Learning for industry: *European Patent Application* (EP 4250200A1).

**Télécom Paris** (Institut Polytechnique de Paris, France) *Apr. 2019 - Sep. 2019*  
*Research intern* in the department IDS/S2A under the direction of [François Portier](#).  
Conducted research on Monte Carlo methods and variance reduction in high dimension.

**Ugam Solutions** (Bengaluru, India) *Jul. 2018 - Sep. 2018*  
*Data analyst intern*: Study and deployment of a deep learning model for multiple object detection.

## Education

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**Télécom Paris** (Institut Polytechnique de Paris, France) *Oct. 2019 - Mar. 2023*  
*PhD in Applied Mathematics and Computer Science*, supervised by [François Portier](#) and [Pascal Bianchi](#)  
"Monte Carlo methods and Stochastic Approximation: Theory and Applications to Machine Learning"  
Keywords: Monte Carlo, stochastic approximation, variance reduction, adaptive sampling. [[PDF](#)]

**École Normale Supérieure Paris-Saclay** (Cachan, France) *2018 - 2019*  
*MSc in Machine Learning and Computer Vision (MVA)* *Highest honours*  
*Highly selective Master of Science program in mathematics, vision and machine learning.*  
Studied different aspects of machine learning such as optimization, stochastic methods, reinforcement learning, kernel methods, geometric approaches in statistical learning, deep learning.

**Télécom Paris** (Institut Polytechnique de Paris, France) *2016 - 2019*  
*MSc in Applied Mathematics and Computer Science* *GPA 4.0*  
*One of France's most prestigious competitive engineering schools (#1 in computer science).*

**Lycée Condorcet** (Paris, France) *2013 - 2016*  
*CPGE MPSI-MP\**: Intensive courses in mathematics, physics and computer science to prepare for competitive entrance exams to top engineering and science schools.

## Technical and Soft Skills

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<b>Technical</b>	Statistics, Probabilities, Optimization, Machine Learning
<b>Computer</b>	Python (NumPy, PyTorch, TensorFlow), $\text{\LaTeX}$ , Git, Pack Office
<b>Languages</b>	French (native), English (fluent), Spanish (elementary), arabic (notion)
<b>Soft Skills</b>	Adaptability, Reliability, Curiosity, Positivity

## Other/Interests

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<b>Music</b>	Piano (+15years) and musical training at the conservatory
<b>Leisure</b>	Workout, Chess, Travels (US, Europe, Asia), Humanitarian trip in Cambodia

## Publications

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*Control Variate Selection for Monte Carlo Integration.* R. Leluc, F. Portier, J. Segers.  
**Statistics and Computing 31, 2021**

*Feature Clustering for Support Identification in Extreme Regions.* H. Jalalzai, R. Leluc.  
**International Conference on Machine Learning (ICML), 2021**

*SGD with Coordinate Sampling: Theory and Practice.* R. Leluc, F. Portier.  
**Journal of Machine Learning Research 23 (JMLR), 2022**

*A Quadrature Rule combining Control Variate and Adaptive Importance Sampling*  
R. Leluc, F. Portier, J. Segers, A. Zhuman  
**Advances in Neural Information Processing Systems (NeurIPS), 2022**

*MARLIM: Multi-Agent Reinforcement Learning for Inventory Management*  
R. Leluc, E. Kadoche, A. Bertinello, S. Gourvénec  
**NeurIPS Workshop on Reinforcement Learning for Real Life, 2022**

*Membership Inference Attacks via Adversarial Examples.* H. Jalalzai, E. Kadoche, R. Leluc, V. Plassier  
**NeurIPS Workshop on Trustworthy and Socially Responsible Machine Learning, 2022**

*Asymptotic Analysis of Conditioned Stochastic Gradient Descent.* R. Leluc, F. Portier.  
**Transactions on Machine Learning Research (TMLR), 2023**

*Speeding up Monte Carlo Integration: Control Neighbors for Optimal Convergence*  
R. Leluc, F. Portier, J. Segers, A. Zhuman. **Under review**

*Compression with Exact Error Distribution for Federated Learning.*  
M. Hegazy, R. Leluc, C.T. Li, A. Dieuleveut.  
**International Conference on Artificial Intelligence and Statistics (AISTATS), 2024**

*A Method for Inventory Management.* R. Leluc, S. Gourvénec.  
**European Patent Application EP 4250200A1.**

## Talks and Events

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<b>Conference "From Matchings to Markets"</b> (CIRM Marseille)	<i>Dec. 2023</i>
<b>Seminar SIMPAS</b> (École Polytechnique)	<i>Mar. 2023</i>
<b>Seminar S2A</b> (Télécom Paris)	<i>Feb. 2023</i>
<b>Poster Session NeurIPS 2022</b> (New Orleans, Louisiana)	<i>Dec. 2022</i>
<b>Seminar SIERRA</b> (Inria, Paris)	<i>Jul. 2022</i>
<b>Math for Machine Learning Summer School</b> (Ben Guérir, Morocco)	<i>Jul. 2022</i>
<b>Semaine Etudes Mathématiques Entreprise (SEME)</b> (Rennes, France)	<i>May. 2022</i>
<b>Poster Session ICML 2021</b> (virtual)	<i>Jul. 2021</i>
<b>Extreme Value Analysis (EVA)</b> (virtual)	<i>Jul. 2021</i>
<b>Seminar EDMH</b> (virtual)	<i>Apr. 2021</i>
<b>Bernoulli-IMS One World Symposium</b> (virtual)	<i>Aug. 2020</i>
<b>Machine Learning Summer School (MLSS)</b> (virtual, 15% acceptance rate)	<i>Jul. 2020</i>
<b>Workshop Probabilistic Methods in Computational Statistics</b> (Télécom SudParis)	<i>Nov. 2019</i>

## Teaching Experience

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<b>Télécom Paris, Teaching assistant</b>	<i>2019 - 2022</i>
<ul style="list-style-type: none"><li>Linear Models (SD-TSIA204): 20h</li><li>Statistics (MDI220/MDI720): 24h</li><li>Martingales and Asymptotic statistics (MACS203): 26h</li></ul>	<ul style="list-style-type: none"><li>Bayesian statistics (M2-DataScience): 10h</li><li>Optimization for Machine Learning (SD-TSIA211): 10h</li></ul>