

# Alex LAMBERT

Machine Learning Researcher

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EMAIL: [alex.lambert@protonmail.com](mailto:alex.lambert@protonmail.com)  
WEBSITE: <https://allambert.github.io>

## RESEARCH EXPERIENCE

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AUG 2021 - PRESENT	KU LEUVEN (Belgium): Postdoctoral researcher with Johan Suykens. Restricted kernel machines and duality.
OCT 2017 - JUL 2021	TÉLÉCOM PARIS (France): PhD, supervised by Florence d'Alché-Buc and Zoltán Szabó. "Learning Function-Valued Functions in RKHSs with Integral Losses: Application to Infinite Task Learning". Keywords: operator-valued kernels, integral losses, lagrangian duality, functional regression, quantile regression, emotion transfer.

## EDUCATION

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SEP 2016 - SEP 2017	ÉCOLE POLYTECHNIQUE (France): M.S. Applied Mathematics for Data Science. Research Internship supervised by Florence d'Alché-Buc, "Efficient learning of deep kernel architectures".
SEP 2014 - SEP 2017	TÉLÉCOM PARIS (France): Engineering degree. Major in probabilistic modeling and data science.

## PUBLICATIONS AND PREPRINTS

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- [1] F. Tonin\*, A. Lambert\*, P. Patrinos, J. Suykens. *Extending Kernel PCA through Dualization: Sparsity, Robustness, and Fast Algorithms*. In Proceedings of ICML 2023.
- [2] A. Lambert, D. Bouche, Z. Szabó, F. d'Alché-Buc. *Functional Output Regression with Infimal Convolution: Exploring the Huber and  $\epsilon$ -insensitive Losses*. In Proceedings of ICML 2022.
- [3] A. Lambert\*, S. Parekh\*, Z. Szabó, F. d'Alché-Buc. *Emotion Transfer Using Vector-Valued Infinite Task Learning*. 2021, Preprint.
- [4] P. Laforgue, A. Lambert, L. Brogat-Motte, F. d'Alché-Buc. *Duality in RKHSs with Infinite Dimensional Outputs: Application to Robust Losses*. In Proceedings of ICML 2020.
- [5] A. Lambert\*, R. Brault\*, Z. Szabó, F. d'Alché-Buc. *A Functional Extension of Multi-Output Learning*. In the AMTL workshop of ICML 2019.
- [6] R. Brault\*, A. Lambert\*, Z. Szabó, F. d'Alché-Buc. *Infinite Task Learning in RKHSs*. In Proceedings of AISTATS 2019.

## SERVICE

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Reviewer for NeurIPS since 2021, AISTATS since 2022, ICML since 2022, TMLR since 2022.

## SOFTWARE

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I have a keen interest in open source software. I maintain the [torch\\_jtl](#) package that solves various vector-valued regression problems with kernels.

I am proficient with Python (numpy, pandas, scikit-learn, pytorch),  $\LaTeX$ , Git, Unix.

## SELECTED TALKS

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- MIND/SODA team seminar (Paris), November 2023. *Robustness and sparsity through Moreau envelopes in kernel-based settings*
- E-Duality meeting (Leuven), May 2022. *On the operator-valued interpretation of Restricted Kernel Machines*
- Simpas Group Meeting (Paris), Feb 2020. *Learning function-valued functions in RKHSs: application to integral losses*
- CAP (Toulouse), Jul 2019. *Infinite Task Learning in RKHSs*
- Chaire Data Science Days (Paris), Oct 2017. *Learning with approximated operator-valued kernels*

## MENTORING

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- OCT 2022 - SEP 2023 (KU LEUVEN): Master thesis supervision. Yueer Guo, *"Functional Output Regression Beyond Square Loss: A Kernel Approach"*
- JUL 2020 - SEP 2020 (TÉLÉCOM PARIS): Internship supervision. Co-advising of Samuel Asserpe with Florence d'Alché-Buc. *"Implementation of Output Kernel Trees and Forests in Python"*

## TEACHING

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OCT 2023 - FEB 2024 (30h)	KU LEUVEN: Teaching assistant for Data Mining and Neural Networks (Master)
APRIL 2023 - AUG 2023 (30h)	KU LEUVEN: Teaching assistant for Support Vector Machines (Master)
OCT 2022 - FEB 2023 (30h)	KU LEUVEN: Teaching assistant for Data Mining and Neural Networks (Master)
APRIL 2022 - AUG 2022 (30h)	KU LEUVEN: Teaching assistant for Support Vector Machines (Master)
OCT 2021 - FEB 2022 (30h)	KU LEUVEN: Teaching assistant for Data Mining and Neural Networks (Master)
OCT 2018 - MAY 2019	TÉLÉCOM PARIS: Scientific advisor (Master project). Anomaly detection for predictive maintenance in collaboration with Valeo
OCT 2017 - JUN 2020 (3×64h)	TÉLÉCOM PARIS: Teaching assistant for <ul style="list-style-type: none"><li>- Real Analysis (MDI 113, Bachelor)</li><li>- Probabilities and Statistics (MDI 114, Bachelor)</li><li>- Optimization for Data Science (SD-TSIA 211, Bachelor)</li><li>- Linear Models (SD-TSIA 204, Bachelor)</li><li>- Machine Learning (SD-TSIA 210, Bachelor)</li><li>- Statistical Learning and Data Mining (MDI 343, Executive Master)</li><li>- Statistics (MDI 720, Executive Master)</li></ul>
SEP 2017 - JAN 2018 (9h)	ÉCOLE POLYTECHNIQUE: Teaching assistant for Advanced Machine Learning (Master)