

## Curriculum Vitae (January 10, 2024)

---

### Personal:

First name: **Pavlo**  
Last name: **Mozharovskyi**  
Date of Birth: 6th of March 1988  
Place of Birth: Kyiv, Ukraine  
Civil status: Married  
Work address: Télécom Paris  
19 place Marguerite Perey  
F-91120 Palaiseau, France  
Phone: +33 (0)7 83 63 01 77  
E-mail: pavlo.mozharovskyi@telecom-paris.fr  
Web-site: <https://perso.telecom-paristech.fr/mozharovskyi>



---

### Employment:

12/2023 - ...: **Full Professor** in Machine Learning  
at **Télécom Paris, Institut Polytechnique de Paris**  
member of the Team Signal, Statistique, Apprentissage (S2A)  
Information Processing and Communication Laboratory (LTCl)

09/2018 - 11/2023: Associate Professor (permanent) in Machine Learning  
at Télécom Paris, Institut Polytechnique de Paris

09/2016 - 08/2018: Assistant Professor (tenure track) in Statistics  
at National School of Statistics and Information Analysis (ENSAI),  
member of Center for Research in Economics and Statistics (CREST)

09/2015 - 08/2016: Individual post-doc fellowship from Lebesgue Center of Mathematics  
(site Agrocampus Ouest, Rennes)

08/2014 - 08/2015: Post-doc at the University of Cologne

10/2011 - 07/2014: Teaching/research assistant at the University of Cologne,  
Faculty of Management, Economics and Social Sciences

11/2009 - 01/2010,  
05–06, 11/2010,  
02–03, 05/2011: Internship at Fachhochschule Merseburg,  
specialty "Informatics and Communication Systems"

---

### Education:

07/2022: Defended **habilitation thesis** entitled:  
"Data depth: computation, applications, and beyond"

07/2014: Defended **PhD thesis** entitled:  
"Contributions to depth-based classification  
and computation of the Tukey depth"  
(supervisor Prof. Dr. Karl Mosler)

10/2011 - 07/2014 : Doctoral student at the **University of Cologne**

06/2011: Defended master thesis entitled:  
"Functional Dependability Management of Corporate  
Information-Telecommunication System"

06/2009: Defended bachelor thesis entitled:  
"Operational Reliability Control in Information  
and Telecommunication Systems"

09/2005 - 06/2011: National Technical University of Ukraine  
“**Kyiv Polytechnic Institute**”  
Faculty of Informatics and Computing Technique  
Department of Information and Control in Technical Systems  
1995 - 2005: School # 314 in Kyiv

---

### Main fields of research:

- Machine learning, explainability of AI algorithms, computational statistics, data depth, anomaly/novelty detection, biomedical applications, multivariate/functional data analysis, robust statistics, missing values, data envelopment analysis.
- 

### Software, data, intellectual property:

- R-packages: `ddalpha` (CRAN), `npsf` (CRAN), `TukeyRegion` (CRAN), `imputeDepth` (GitHub), `geometry` (CRAN), `misaem` (CRAN), `curveDepth` (CRAN).
  - Python-library: `data-depth`.
  - STATA-commands: `tenonradial`, `teradial`, `teradialbc`, `nptestind`, `nptestrts`.
  - MATLAB-package: `LCML`.
  - Repository with 50 ready-to-use real-data binary classification tasks.
  - Rolick, A. and Mozharovskyi, P. (2013): **Patent** UA 103475 C2, Method of functionality analysis of objects of an information-telecommunication system, N a 2010 12773, Ukraine.
  - Telenyk, S., Rolick, O., Litvintsov, O., Mozharovskyi, P., Voloshyn, A., Galushko, D., Vovk, V. (2011): **Author right** UA N 38832 on Computer program “IT-infrastructure control system SmartBase ITS Control”.
- 

### Grants:

- ANR JCJC 2021 [246K€, PI, 36 months]: National Agency of Research (France), Young Researcher Grant (grant number ANR-21-CE23-0029-01), “Large-Scale Data Depth: Computation and Applications” (LS-Depth-CaP).
- Mobility Grant 2021 [10K€, co-PI, 24 months]: Campus France, Programme Bar-rande (grant number 46745VD), “Nonparametric Statistics for Complex Data”.
- ANR PRCE 2020 [562K€, involved in 2 WPs, 36 months]: National Agency of Research (France), Collaborative Research Project — Enterprises (with IDEMIA), “Leveraging Interpretable Machines for Performance Improvement and Decision” (LIMPID).
- Post-doc Fellowship Grant 2015 [PI, 24 months]: Lebesgue Center for Mathematics (grant number PIA-ANR-11-LABX-0020-01), “Imputation of Missing Data Based on Data Depth”.

---

### Industrial funding and collaboration:

- Co-PI in a team-based industrial machine-learning consulting contract with Valeo (01/2021 – 06/2021).
- Participation as investigator in the PSPC Project Espresso funded by BPI France (2017 – 2020).

---

### Languages:

- Knowledge of **programming languages**: R, Python, Matlab, Stata, C/C++, C#, Pascal/Delphi, Prolog, Assembler, SQL (FoxPro, MSSQL, Oracle).
- Knowledge of **natural languages**: Ukrainian (mother tongue), Russian (native proficiency), English (fluent), French (fluent), German (fluent), Spanish (intermediate), Polish (basic).

---

### Supervised research team:

- Guillaume Staerman (co-supervision with Florence d’Alché-Buc and Stephan Cléménçon): PhD student, January 2019 – April 2022.
- Jayneel Parekh (co-supervision with Florence d’Alché-Buc): PhD student, September 2019 – July 2023.
- Romain Valla (CIFRE, co-supervision with Florence d’Alché-Buc): PhD student, February 2022 – ...
- Jérémy Guérin: PhD student, April 2022 – ...
- Arturo Castellanos Salinas (co-supervision with Hicham Janati): PhD student, October 2022 – ...
- Aël Quélenec (co-supervision with Van-Tam Nguyen and Enzo Tartaglione): PhD student, January 2023 – ...
- Leonardo Leone (co-supervision with David Bounie): PhD student, October 2023 – ...

---

### Journal articles:

- Staerman, G., Mozharovskyi, P., Colombo, P., Cléménçon, S., and d’Alché-Buc, F. (2024). A pseudo-metric between probability distributions based on depth-trimmed regions. *Transactions on Machine Learning Research*, in press.
- Parekh, J., Parekh, S., Mozharovskyi, P., Richard, G., and d’Alché-Buc, F. (2023). Tackling interpretability in audio classification networks with non-negative matrix factorization. *IEEE Transactions on Audio, Speech and Language Processing*, in press.

- Fojtík, V., Laketa, P., Mozharovskiy, P., and Nagy, S. (2023): On exact computation of Tukey depth central regions. *Journal of Computational and Graphical Statistics*, in press.
- Malinovskaya, A., Mozharovskiy, P., and Otto, P. (2023): Statistical process monitoring of artificial neural networks. *Technometrics*, in press.
- Cléménçon, S., Mozharovskiy, P., and Staerman, G. (2023): Affine invariant integrated rank-weighted statistical depth: properties and finite sample analysis. *Electronic Journal of Statistics*, 17(2), 3854–3892.
- Staerman, G., Adjakossa, E., Mozharovskiy, P., Hofer, V., Sen Gupta, J., and Cléménçon, S. (2023): Functional anomaly detection: a benchmark study. *International Journal of Data Science and Analytics*, 16, 101–117.
- Mosler, K. and Mozharovskiy, P. (2022): Choosing among notions of multivariate depth statistics. *Statistical Science*, 37(3), 348–368.
- Lafaye De Micheaux, P., Mozharovskiy, P., and Vimond, M. (2021): Depth for curve data and applications. *Journal of the American Statistical Association*, 116(536), 1881–1897.
- Statzer, C., Jongsma, E., Liu, S. X., Dakhovnik, A., Wandrey, F., Mozharovskiy, P., Züllig, F., and Ewald, C. Y. (2021): Youthful and age-related matrotypes predict drugs promoting longevity. *Aging Cell*, 20, e13441, <https://doi.org/10.1111/acel.13441>.
- Dyckerhoff, R., Mozharovskiy, P., and Nagy, S. (2020): Approximate computation of projection depths. *Computational Statistics and Data Analysis*, 157, 107166.
- Nagy, S., Dyckerhoff, R., and Mozharovskiy, P. (2020): Uniform convergence rates for the approximated halfspace and projection depth. *Electronic Journal of Statistics*, 14(2), 3939–3975.
- Mozharovskiy, P., Josse, J., and Husson, F. (2020): Nonparametric imputation by data depth. *Journal of the American Statistical Association*, 115(529), 241–253.
- Badunenko, O. and Mozharovskiy, P. (2020): Statistical inference for the Russel measure of technical efficiency. *Journal of the Operational Research Society*, 71(3), 517–527.
- Pokotylo, O., Mozharovskiy, P., and Dyckerhoff, R. (2019): Depth and depth-based classification with R-package `ddalpha`. *Journal of Statistical Software*, 91(5), 1–46.
- Liu, X., Mosler, K., and Mozharovskiy, P. (2019): Fast computation of Tukey trimmed regions and median in dimension  $p > 2$ . *Journal of Computational and Graphical Statistics*, 28(3), 682–697.
- Mosler, K. and Mozharovskiy, P. (2017): Fast *DD*-classification of functional data. *Statistical Papers*, 58(4), 1055–1089.
- Mozharovskiy, P. and Vogler, J. (2016): Composite marginal likelihood estimation of spatial autoregressive probit models feasible in very large samples. *Economics Letters*, 148, 87–90.

- Badunenko, O. and Mozharovskyi, P. (2016): Nonparametric frontier analysis using STATA. *Stata Journal*, 16(3), 550–589.
- Dyckerhoff, R. and Mozharovskyi, P. (2016): Exact computation of the halfspace depth. *Computational Statistics and Data Analysis*, 98, 19–30.
- Mozharovskyi, P., Mosler, K., and Lange, T. (2015): Classifying real-world data with the  $DD\alpha$ -procedure. *Advances in Data Analysis and Classification*, 9(3), 287–314.
- Lange, T., Mosler, K., and Mozharovskyi, P. (2014): Fast nonparametric classification based on data depth. *Statistical Papers*, 55(1), 49–69.
- Lange, T. and Mozharovskyi, P. (2010): Depth determination for multivariate samples (in Russian). *Inductive modeling of complex systems*, I 2, 101–119.
- Grishko, V.F. and Mozharovskyi, P.F. (2009): Management-information system hardware reliability evaluation (in Ukrainian). *Mathematical Machines and Systems*, 3, 194–201.

---

### Conference proceedings:

- Quélenec, A., Tartaglione, E., Mozharovskyi, P., and Nguyen, V.-T. (2023). Towards on-device learning on edge devices: ways to select neurons to update under a budget constraint. *The 1st International Conference on Smart Computing and Internet of Things Design (with WACV 2024)*, in press.
- Wang, Y., Nahon, R., Tartaglione, E., Mozharovskyi, P., and Nguyen, V.-T. (2023): Optimized preprocessing and Tiny ML for Attention State Classification. *IEEE Statistical Signal Processing Workshop (SSP 2023)*, 695–699.
- Parekh, J., Parekh, S., Mozharovskyi, P., d’Alché-Buc, F., and Richard, G. (2022): Listen to interpret: Post-hoc interpretability for audio networks with NMF. In: Koyejo, S., Mohamed, S., Agarwal, A., Belgrave, D. Cho, K. and Oh, A. (eds.), *Advances in Neural Information Processing Systems (NeurIPS 2022)*, 35, 35270–35283.
- Goibert, M., Cléménçon, S., Irurozki, E., and Mozharovskyi, P. (2022): Statistical depth functions for ranking distributions: definitions, statistical learning and applications. In: Camps-Valls, G., Ruiz, F. J. R., Valera, I. (eds.): *Proceedings of The Twenty Fifth International Conference on Artificial Intelligence and Statistics (AISTATS 2022)*, 151, 10376–10406.
- Parekh, J., Mozharovskyi, P., and D’Alché-Buc, F. (2021): A framework to learn with interpretation. In: Ranzato, M., Beygelzimer, A., Dauphin, Y., Liang, P.S. and Wortman Vaughan, J. (eds.), *Advances in Neural Information Processing Systems (NeurIPS 2021)*, 34, 24273–24285.
- Staerman, G., Laforgue, P., Mozharovskyi, P., and D’Alché-Buc, F. (2021): When OT meets MoM: Robust estimation of Wasserstein distance. In: Banerjee, A. and Fukumizu, K. (eds.) *Proceedings of The 24th International Conference on Artificial Intelligence and Statistics (AISTATS 2021)*, 130, 136–144.

- Beaudoin, V., Bloch, I., Bounie, D., Cléménçon, S., D’Alché-Buc, F., Eagan, J., Maxwell, W., Mozharovskyi, P., and Parekh, J. (2020): Identifying the “right” level of explanation in a given situation. In: Saffiotti, A., Serafini, L., and Lukowicz, P. (eds.), *Proceedings of the First International Workshop on New Foundations for Human-Centered AI (NeHuAI 2020 with ECAI 2020)*, 63–66.
- Staerman, G., Mozharovskyi, P., and Cléménçon, S. (2020): The area of the convex hull of sampled curves: a robust functional statistical depth measure. In: Chiappa, S. and Calandra, R. (eds.), *Proceedings of Machine Learning Research (AISTATS 2020)*, 108, 570-579.
- Staerman, G., Mozharovskyi, P., Cléménçon, S., and D’Alché-Buc, F. (2019): Functional isolation forest. In: Lee, W. S. and Suzuki, T. (eds.), *Proceedings of Machine Learning Research (ACML 2019)*, 101, 332-347.
- Lange, T., Mosler, K., and Mozharovskyi, P. (2014):  $DD\alpha$ -classification of asymmetric and fat-tailed data. In: Spiliopoulou, M., Schmidt-Thieme, L., and Janning, R. (eds.), *Data Analysis, Machine Learning and Knowledge Discovery*, Springer, Berlin, 71–78.
- Lange, T. and Mozharovskyi, P. (2014): The alpha-procedure: a nonparametric invariant method for automatic classification of multi-dimensional objects. In: Spiliopoulou, M., Schmidt-Thieme, L., and Janning, R. (eds.), *Data Analysis, Machine Learning and Knowledge Discovery*, Springer, Berlin, 79–86.
- Lange, T., Mosler, K., and Mozharovskyi, P. (2013): Efficient depth-based classification using a projective invariant of class membership (in Russian). *Control Systems and Computers*, 2, 47–58.
- Lange, T., Mozharovskyi, P., and Barath, G. (2011): Two approaches for solving tasks of pattern recognition and reconstruction of functional dependencies. *Proceedings of ASMDA Conference, Rome, 7–10 June 2011* (supplemented with examples and benchmark results, Statistical Week, Leipzig, 19–23 September 2011).
- Rolick, A., Mozharovskyi, P., and Mart, B. (2010): Application of depth-trimmed regions in IT-infrastructure control systems (in Russian). Coll. of Papers of the 10th Int. Conf. *Intellectual Analysis of Information*, Kyiv, 18-21 May 2010, 214–221.

---

### Scientific reports:

- Beaudouin, V., Bloch, I., Bounie, D., Cléménçon, S., D’Alché-Buc, F., Eagan, J., Maxwell, W., Mozharovskyi, P., and Parekh, J. (2020): Flexible and context-specific AI explainability: A multidisciplinary approach. [arXiv:2003.07703](https://arxiv.org/abs/2003.07703).
- Mozharovskyi, P. (2016): Tukey depth: linear programming and applications. [arXiv:1603.00069](https://arxiv.org/abs/1603.00069).

---

### PhD thesis:

- Mozharovskyi, P. (2015): *Contributions to depth-based classification and computation of the Tukey depth*. Dr. Kovač Verlag, Hamburg.  
Supervisors: Karl Mosler and Tatjana Lange.

---

### Habilitation thesis:

- Mozharovskiy, P. (2022): *Data depth: computation, applications, and beyond*. Institut Polytechnique de Paris.

Committee: Gérard Biau, Victor-Emmanuel Brunel, Guillaume Lecué, Regina Liu, Davy Paindaveine, Peter Rousseeuw, Richard J. Samworth.

---

### Selected invited talks and organized sessions:

- Invited to an organized session at *International Conference of the ERCIM WG* (Berlin, December 2023).
- Organized a session by invitation for *International Conference on Computational Statistics* (London, August 2023).
- Invited to an organized session at *European Meeting of Statisticians* (Warsaw, July 2023).
- Invited to an organized session at *International Conference on Robust Statistics* (Toulouse, May 2023).
- Invited to an organized session at *International Conference on Statistics and Data Science* (Florence, December 2022).
- Invited to an organized session at *32nd Conference of The Association of European Operational Research Societies* (Helsinki, July 2022).
- Invited to an organized session at *International Conference of the ERCIM WG* (hybrid, London, December 2021, online talk).
- Invited speaker at the *Conference on Robustness and Privacy* (online, Palaiseau, March 2021).
- Invited presentation (tutorial) at *Dagstuhl Seminar* (hybrid, Dagstuhl Castle, September 2020, online talk).
- Organized a session by invitation for *International Conference of the ERCIM WG* (London, December 2019).
- Invited to an organized session at *International Conference of the ERCIM WG* (London, December 2019).
- Invited plenary talk at the *Workshop on Set Optimization and Statistics* (Brunico / Bruneck, November 2019).
- Organized a session by invitation for *Workshop Cronos & MDA* (Limassol, April 2019).
- Invited presentation at *ECARES Research Seminar Econometrics and Statistics* (Brussels, March 2019).
- Invited presentation at *ATMS Workshop* (Leuven, August 2018).

- Invited presentation at *ENSAE Statistical Research Seminar* (Paris, May 2017).
- Invited presentation for *Café des Statistiques at Ecole Polytechnique* (Paris, September 2016).
- Invited to an organized session at *German Statistical Week* (Hamburg, September 2015).

---

#### Editorial and reviewing and activities:

- Associate Editor of the journal *Computational Statistics and Data Analysis*.
- Guest Editor for Special Issue on Generative AI for aging research and drug discovery for the journal *Nature npj Aging*.
- Guest Editor for Special Issue on Network Monitoring with Machine Learning Methods for the journal *Computers and Industrial Engineering*.
- Permanent reviewer for Mathematical Reviews (MathSciNet).
- Reviewer for Swiss National Science Foundation, Labex DigiCosme, Czech Science Foundation, Agence Nationale de la Recherche.
- Reviewer for: Austrian Journal of Statistics, Australian & New Zealand Journal of Statistics, Advances in Statistical Analysis, Bulletin of the Belgian Mathematical Society, Computational Statistics, Computational Statistics & Data Analysis, European Journal of Operational Research, Journal of Computational and Graphical Statistics, Journal of Economic Surveys, Journal of Forecasting, Journal of Machine Learning Research, Journal of Nonparametric Statistics, Journal of Statistical Planning and Inference, Journal of the American Statistical Association, Kybernetika, ALEA, Optimization Letters, PLOS One, Statistical Papers, Statistics and Computing, TEST, Transactions on Pattern Analysis and Machine Intelligence.