

Maksym Andriushchenko – Curriculum Vitae

PERSONAL DATA

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EDUCATION

École Polytechnique Fédérale de Lausanne (EPFL), Switzerland (*Sep 2019 - now*)
PhD student in Computer Science advised by Nicolas Flammarion

Saarland University, Germany (*Oct 2016 – Aug 2019*)
Master's Degree in Computer Science advised by Matthias Hein from the University of Tübingen

Dnipro National University of Railway Transport, Ukraine (*Sep 2012 – June 2016*)
Bachelor's Degree in Software Engineering — *with honors*

EMPLOYMENT

Google Research , New York Office, US	Time (expected): December 2023 – March 2024 Role: Research internship supervised by Srinadh Bhojanapalli
Adobe Research , Media Intelligence Lab, remote	Time: July 2021 – October 2021 Role: Research internship supervised by John Collomosse
PrivatBank , Dnipro, Ukraine	Time: November 2015 – June 2016 Role: Part-time data scientist (predictive modeling, e-commerce personalization)

AWARDS

Scholarships and Grants	Google PhD fellowship 2022-2025 (\$80k per year for up to 3 years) Open Philanthropy AI PhD Fellowship 2022-2024 (\$10k per year for travel/equipment) Google Research Collab 2022-2023 (\$80k for one year + \$20k in cloud compute) EDIC PhD fellowship from EPFL for the first year (\$60k) DAAD MSc scholarship for 2 years to study at Saarland University (\$20k)
Awards	Joint Conference of Korean AI Association (2023): best paper award ICLR 2021 Workshop on Security & Safety in ML Systems: best paper honorable mention Swiss Machine Learning Day (2019): best paper award

ACADEMIC SERVICE

Participant	Red teaming of the OpenAI Fine-tuning service as an external expert (October 2023) Robust AI 4-day workshop organized by Airbus AI Research and TNO (January 2021)
Reviewer	ICML'23, NeurIPS'22 (top reviewer), ICML'22, NeurIPS'21, ICML'21, CVPR'21, ICLR'21 (outstanding reviewer), NeurIPS'20 (top 10% reviewers)
Program committee in workshops	NeurIPS'23 “R0-FoMo Workshop on Robustness of Few-shot and Zero-shot Learning in Foundation Models”, NeurIPS'23 “Workshop on Distribution Shifts: New Frontiers with Foundation Models”, ICML'23 “2nd ICML Workshop on New Frontiers in Adversarial ML”, ICLR'23 “Workshop on Pitfalls of Limited Data and Computation for Trustworthy ML”, NeurIPS'22 “Workshop on Distribution Shifts”, NeurIPS'22 “ML Safety Workshop”, ICML'22 “New Frontiers in Adversarial Machine Learning”, ICML'22 “Principles of Distribution Shift”, NeurIPS'21 : “Distribution Shifts: Connecting Methods and Applications”, ICML'21 “Uncertainty and Robustness in Deep Learning”, CVPR'21 “Adversarial ML in Real-World Computer Vision Systems”, ICLR'21 “Robust and Reliable ML in the Real World”, “Security and Safety in ML Systems”, ICML'20 “Uncertainty and Robustness in Deep Learning”, CVPR'20 “Adversarial ML in Computer Vision”, ICLR'20 “Towards Trustworthy ML” (best reviewer award)
Outreach activities	National coordinator for Switzerland at #ScienceForUkraine Coordinator for Switzerland and admission officer at the Ukrainian Global University AI and STEM workshop at a summer camp for displaced Ukrainian children in Romania

STUDENT SUPERVISION

Hichem Hadhri	MSc project (2023): work in progress
Hao Zhao	MSc thesis (2023): work in progress
Tiberiu Musat	BSc project (2023): work in progress
Francesco d'Angelo	PhD semester project (2023): “Understanding the role of weight decay in deep learning”
Théau Vannier	MSc project (2023): “Understanding the training instability of transformers”
Joshua Freeman	BSc project (2022, unofficial): “Automatic recognition of unexploded ordnance using transfer learning”
Jana Vuckovic	MSc project (2022): “Rethinking the relationship between sharpness and generalization” (follow-up work is published at ICML'23)
Mehrdad Saberi	Summer internship (2021): “Wasserstein adversarial training and perceptual robustness”
Edoardo Debenedetti	MSc project (2021): “RobustBench: a standardized adversarial robustness benchmark” (published at NeurIPS'21 Datasets and Benchmarks Track)
Klim Kireev	PhD semester project (2020): “On the effectiveness of adversarial training against common corruptions” (published at UAI'22)
Etienne Bonvin	MSc project (2020): “Adversarial robustness of kernel methods”
Oriol Barbany	MSc project (2019): “Affine-invariant robust training”

TEACHING EXPERIENCE

EPFL	Probability & Statistics 2021, 2022 (by E. Abbé), Machine Learning 2020, 2021, 2022, 2023 (by M. Jaggi, N. Flammarion), Advanced Algorithms 2020 (by M. Kapralov)
MPI for Informatics	Machine Learning 2018-2019 (lecturer: B. Schiele)
Saarland University	Neural Networks: Implementation and Application 2017 (lecturer: D. Klakow)

SELECTED PUBLICATIONS

- M. Andriushchenko**, D. Bahri, H. Mobahi, N. Flammarion. Sharpness-Aware Minimization Leads to Low-Rank Features (NeurIPS 2023) [[paper](#)]
- M. Andriushchenko**, F. Croce, M. Müller, M. Hein, N. Flammarion. A Modern Look at the Relationship between Sharpness and Generalization (ICML 2023) [[paper](#)]
- M. Andriushchenko**, A. Varre, L. Pillaud-Vivien, N. Flammarion. SGD with Large Step Sizes Learns Sparse Features (ICML 2023) [[paper](#)]
- M. Andriushchenko**, N. Flammarion. Towards Understanding Sharpness-Aware Minimization (ICML 2022) [[paper](#)]
- M. Mosbach, **M. Andriushchenko**, D. Klakow. On the Stability of Fine-tuning BERT: Misconceptions, Explanations, and Strong Baselines (ICLR 2021) [[paper](#)]
- M. Andriushchenko**, N. Flammarion. Understanding and Improving Fast Adversarial Training (NeurIPS 2020) [[paper](#)]
- M. Andriushchenko***, F. Croce*, N. Flammarion, M. Hein. Square Attack: a Query-Efficient Black-Box Adversarial Attack via Random Search (ECCV 2020) [[paper](#)]

FULL PUBLICATION LIST

- M. Andriushchenko***, F. D'Angelo*, A. Varre, N. Flammarion. Why Do We Need Weight Decay in Modern Deep Learning? (September 2023, under submission) [[paper](#)]
- L. Adilova, **M. Andriushchenko**, M. Kamp, A. Fischer, M. Jaggi. Layer-Wise Linear Mode Connectivity (September 2023, under submission) [[paper](#)]
- S. Shin, D. Lee, **M. Andriushchenko**, N. Lee. The Effects of Overparameterization on Sharpness-Aware Minimization: An Empirical and Theoretical Analysis (September 2023, **best paper award** at the Joint Conference of Korean Artificial Intelligence Association (2023))

M. Andriushchenko, D. Bahri, H. Mobahi, N. Flammarion. Sharpness-Aware Minimization Leads to Low-Rank Features (NeurIPS 2023) [[paper](#)]

K. Kireev, **M. Andriushchenko**, C. Troncoso, N. Flammarion. Transferable Adversarial Robustness for Categorical Data via Universal Robust Embeddings (NeurIPS 2023) [[paper](#)]

M. Andriushchenko, F. Croce, M. Müller, M. Hein, N. Flammarion. A modern look at the relationship between sharpness and generalization. (ICML 2023) [[paper](#)]

M. Andriushchenko, A. Varre, L. Pillaud-Vivien, N. Flammarion. SGD with large step sizes learns sparse features (ICML 2023) [[paper](#)]

K. Kireev*, **M. Andriushchenko***, N. Flammarion. On the effectiveness of adversarial training against common corruptions (UAI 2022, [ICLR'21 Workshop on Robust and Reliable Machine Learning in the Real World](#)) [[paper](#)]

Michael Rose, Sanita Reinsone, **Maksym Andriushchenko**, Marcin Bartosiak, Anna Bobak et al. #ScienceForUkraine: an Initiative to Support the Ukrainian Academic Community. “3 Months Since Russia’s Invasion in Ukraine”, February 26 – May 31, 2022 (SSRN, 2022) [[paper](#)]

M. Andriushchenko, N. Flammarion. Towards Understanding Sharpness-Aware Minimization (ICML 2022) [[paper](#)]

M. Andriushchenko, X. Rebecca Li, Geoffrey Oxholm, Thomas Gittings, Tu Bui, Nicolas Flammarion, John Collomosse. ARIA: Adversarially Robust Image Attribution for Content Provenance ([CVPR 2022 Workshop on Media Forensics](#)) [[paper](#)]

F. Croce, **M. Andriushchenko**, N. Singh, N. Flammarion, M. Hein. Sparse-RS: a versatile framework for query-efficient sparse black-box adversarial attacks (AAAI 2022) [[paper](#)]

F. Croce*, **M. Andriushchenko***, V. Schwag*, E. Debenedetti*, N. Flammarion, M. Chiang, P. Mittal, M. Hein. RobustBench: a standardized adversarial robustness benchmark (NeurIPS 2021 Datasets and Benchmarks Track, **Best Paper Honorable Mention Prize** at [ICLR 2021 Workshop on Security and Safety in Machine Learning Systems](#)) [[paper](#)]

M. Mosbach, **M. Andriushchenko**, D. Klakow. On the Stability of Fine-tuning BERT: Misconceptions, Explanations, and Strong Baselines (ICLR 2021) [[paper](#)]

M. Andriushchenko*, F. Croce*, N. Flammarion, M. Hein. Square Attack: a query-efficient black-box adversarial attack via random search (ECCV 2020) [[paper](#)]

M. Andriushchenko, N. Flammarion. Understanding and Improving Fast Adversarial Training (NeurIPS 2020) [[paper](#)]

M. Andriushchenko, M. Hein. Provably Robust Boosted Decision Stumps and Trees against Adversarial Attacks (NeurIPS 2019, contributed talk at [Workshop on Machine Learning with Guarantees](#); **best paper award** at Swiss Machine Learning Day (2019)) [[paper](#)]

M. Hein, **M. Andriushchenko**, J. Bitterwolf. Why ReLU networks yield high-confidence predictions far away from the training data and how to mitigate the problem (oral at CVPR 2019, 5.6% acceptance rate, contributed talk at [ICML 2019 Uncertainty and Robustness in Deep Learning Workshop](#)) [[paper](#)]

F. Croce*, **M. Andriushchenko***, M. Hein. Provable Robustness of ReLU Networks via Maximization of Linear Regions (AISTATS 2019) [[paper](#)]

M. Mosbach*, **M. Andriushchenko***, T. Trost, M. Hein, D. Klakow. Logit Pairing Methods Can Fool Gradient-Based Attacks ([NeurIPS 2018 Workshop on Security in ML](#)) [[paper](#)]

M. Hein and **M. Andriushchenko**. Formal Guarantees on the Robustness of a Classifier Against Adversarial Manipulation (NeurIPS 2017) [[paper](#)]