Maksym Andriushchenko – Curriculum Vitae

PERSONAL DATA

Site: https://andriushchenko.me/
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Scholar: https://scholar.google.com/citations?user=ZNtuJYoAAAAJ
Github: https://github.com/max-andr/

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

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	NeurIPS'23, 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

H. Zhao, **M. Andriushchenko**, F. Croce, N. Flammarion. Long Is More for Alignment: A Simple but Tough-to-Beat Baseline for Instruction Fine-Tuning (February 2024) [paper]

M. Andriushchenko. Adversarial Attacks on GPT-4 via Simple Random Search (December 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]

F. Croce*, **M. Andriushchenko***, V. Sehwag*, 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. 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

H. Zhao, **M. Andriushchenko**, F. Croce, N. Flammarion. Long Is More for Alignment: A Simple but Tough-to-Beat Baseline for Instruction Fine-Tuning (February 2024) [paper]

M. Andriushchenko. Adversarial Attacks on GPT-4 via Simple Random Search (December 2023) [paper]

E. Debenedetti, Z. Wan, **M. Andriushchenko**, V. Sehwag, K. Bhardwaj, B. Kailkhura. Scaling Compute Is Not All You Need for Adversarial Robustness (December 2023) [paper]

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 (ICLR 2024) [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) [paper])

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. Sehwag*, 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]