Aleksandr (Sasha) Podkopaev

Education

2018 – 2023 (summer) **PhD in Statistics & Machine Learning**, *Carnegie Mellon University*, GPA: 4.1 / 4.0.
Advisor: Aaditya Ramdas.
Relevant coursework: statistics, machine learning, convex optimization, deep learning, statistical computing.

2016 – 2018 **MSc in Applied Mathematics & Computer Science**, *Skolkovo Institute of Science and Technology, Moscow Institute of Physics and Technology (joint program)*, GPA: 5.0 / 5.0.
Relevant coursework: high-dimensional statistics, numerical linear algebra, random matrix theory.

2012 – 2016 **BSc in Applied Mathematics & Physics**, *Moscow Institute of Physics and Technology*, GPA: 4.9 / 5.0.

Experience

2022 **AWS (Causality Team)**, Research Intern, Santa Clara, CA.
Developed a sequential nonparametric independence test for general observation spaces (images, text, etc.). This test: (a) enables continuous data monitoring while maintaining validity, (b) is provably consistent, (c) demonstrates superior performance compared to existing methods on synthetic and real (MNIST, weather, etc.) data.

2020 **Google (Chrome Team)**, Data Science Intern, Pittsburgh, PA (Remote).
Conducted a deep analysis of the experimentation pipeline and identified its sensitivity to heavy-tailed data. Used simulation techniques to generate synthetic data that closely mimicked real observations, which provided insights into the existing flaws. Proposed potential improvements to enhance the reliability of the pipeline.

2017 **S7**, Intern, Moscow, Russia.
Performed a detailed study of supply chain data to identify the corresponding key trends. Utilized predictive modeling to forecast demand for inventory optimization.

Research

Interests Theory, algorithms, and software for sequential testing and anytime-valid inference, assumption-lean predictive uncertainty quantification (conformal prediction, calibration), and inference under distribution shifts with diverse applications to real-world problems.

Invited speaker ISSI and HSE (sequential two-sample and independence testing), JSM and ICSA (predictive uncertainty quantification under distribution shifts), RBC (testing dataset shifts).

Publications

(arXiv) **AP**, A. Ramdas "Sequential predictive two-sample and independence testing".

(ICML 23) **AP**, P. Blöbaum, S. Kasiviswanathan, A. Ramdas "Sequential kernelized independence testing".

(ICLR 22) **AP**, A. Ramdas "Tracking the risk of a deployed model and detecting harmful distribution shifts".

(UAI 21) **AP**, A. Ramdas "Uncertainty quantification for classification under label shift" (longer oral).

(NeurIPS 20) C. Gupta*, **AP***, A. Ramdas "Distribution-free binary classification: prediction sets, confidence intervals and calibration" (spotlight; **equal contribution*).

Service

Reviewer NeurIPS, ICLR, ICML, JMLR.

TA Graduate-level classes at CMU and Skoltech (advanced statistical theory, convex optimization).

Social Department committees (retreat, open house) at CMU.

Skills

Languages Python (Preferred), R.

Tools Sklearn, Pandas, Matplotlib, Tensorflow, Keras, LaTeX, Git/Github.

Awards

MIPT Increased student scholarship, Abramov fund scholarship.

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