German Magai

Location: Moscow, Russia

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Born: 6 August 1996

Research interests:

Topology and geometry deep representation learning, Topology in generative models (GAN), Manifold learning and Topological Data Analysis (TDA).

Computer vision, face and object recognition, anti-spoofing algorithms.

Education

- 2020 – to date: Postgraduate studies: National Research University Higher School of Economics (HSE University), Moscow. Faculty of Computer Science. PhD topic: "Methods of algebraic topology in the study of neural networks architecture".

- 2018 – 2020: Master's degree: Novosibirsk State Technical University (NSTU), Faculty of Automation and Computer Engineering (AVTF), direction: "Informatics and computer technology ", profile:" Computer modeling of systems ", 2020, diploma with honors. Master's thesis topic: "Research and development of methods counteracting spoofing attacks "

- 2014 – 2018: Bachelor's degree: Omsk State Transport University (OSTU), IATIT, direction: "Informatics and Computer Engineering", diploma with honors.

Work and scientific activity

- 2020 – to date: Research Assistant, "International Laboratory of Algebraic topology and its applications", National Research University Higher School of Economics, Department of Big Data and Information Retrieval, Moscow. Performing work on topics

  o 2022: Geometric and homological methods in mathematics and data analysis.

  o 2020 – 2021: Topology, geometry and combinatorics in applications.

- 2018 - 2020. Research engineer in the laboratory "Computer vision and augmented reality" Novosibirsk State Technical University, Novosibirsk.

- 2019 - 2020 Scientific research work (R&D) for the enterprise "Eltex", Novosibirsk.

- 2019 - 2020: Implementation of ACS with a biometric identification system (face recognition), LLC Novomilk, Novosibirsk.

- 2019 Research work for the NPCC enterprise (Novosibirsk plant chemical concentrates): "A system of industrial video analytics based on deep learning for the control of personal protective equipment at hazardous production".

Conferences and achievements

- 2022: 3rd place (captain, teamlead) in the hackathon "Global AI Challenge" International industry online hackathon in the field of AI in new materials, organized by Innopolis University.

- 2020: Prize-winner of the Yandex Olympiad "I am a professional" in the direction "Artificial intellect ", MIPT, Moscow.

- 2020: Publication: "Deep learning for personal protective equipment detection "/A.A. Soroka, G.I. Magai, E. A. Bukhamer; International symposium on computer science, computer engineering and educational technologies (ISCSET-2020)

- 2019: Winner of "IT-Start" of the All-Russian program for the development of technological entrepreneurship, project: "Automated system for collecting and processing data."

Research and educational schools

- 2021 London Geometry and Machine Learning Summer School ('LOGML'), project: Stability or Collapse: Topological Properties of Deep Autoencoders, supervisor: Dr Kelly Spendlove, Oxford (online).

- 2021 International School "Toric Topology and Combinatoric», Sirius Math Center, Sochi, Russia. Project: «Random topology».

- 2021 Third Autumn School on Generative Models, National Research University Higher School of Economics, Yandex, Moscow.

- 2020: Winter School on Artificial Intelligence "Absolute Future", MIPT, Moscow.

- 2020: New Year's School of ISMC SPbSU in Mathematics and Computer Science.

- 2020: Autumn Online School "Applications of Topology and Geometry - 2020", National Research University Higher School of Economics.

Skills

Programming languages: Python, SQL.

Machine learning and data analysis:

- ML/DA: NumPy, Scikit-learn, SciPy, Matplotlib, Plotly, Pandas.
- Deep learning: Tensorflow/Keras, PyTorch.
- Computer vision: OpenCV, Dlib.
- Applied topology/Topological data analysis: Ripser, GUDHI, Giotto-tda.

Development: Qt5, Django, Flask, HTML & CSS, PhpMyAdmin, WordPress, Git.

Languages: Russian, English.