

EDUCATION

MSc in Computer Science

University of Bonn, Germany
Oct 2022 – Sep 2024

BSc in Physics

Moscow State University, Russia
Sep 2018 – Aug 2022

RESEARCH EXPERIENCE

Research Assistant

ETH Zurich, remote

Supervisors: Prof. Danda Pani Paudel, Dr. Thomas Probst

Apr 2023 – Present

- Developed a NeRF-based 3D reconstruction of the human hand from 60 images; evaluated on 500+ sequences from the Interhand3.6m dataset
- Implemented a point-mesh distance finding algorithm on the GPU; reduced the calculation time from 5s to 0.3s compared to the CPU baseline
- Introduced perceptual loss (LPIPS) to enhance the visual quality; improved PSNR score by 14% over MSE loss

Research assistant

Moscow State University, Russia

Supervisors: Prof. Sergei Popov, Prof. Roberto Turolla

Nov 2019 – Feb 2022

- Developed a dark matter detection model using satellite images of neutron stars; processed 3.1 TB of data collected over 4 years
- Utilized Very Deep Super-Resolution (VDSR) network to upscale low-resolution satellite images; improved SSIM metric by 11% over the baseline bicubic interpolation
- Implemented a background subtraction model based on the R-CNN network; achieved a 3x speedup compared to the GrabCut algorithm

PUBLICATIONS

- **Toward Constraining Axions with Polarimetric Observations of the Isolated Neutron Star RX J1856.5–3754** ([PDF](#))
*A. Zhuravlev, R. Taverna, R. Turolla; *The Astrophysical Journal* (2022)*
- **Photon-axion mixing in thermal emission of isolated neutron stars** ([PDF](#))
*A. Zhuravlev, S. Popov, M. Pshirkov; *Physics Letters B* (2021)*

PROJECTS

• **Implicit Hand Reconstruction**

Apr 2023 – Present

[Project Page](#)

Developed a NeRF-based 3D reconstruction of a human hand from monocular and multi-view sequences, based on Interhand2.6m dataset

- Human Pose Forecasting** **Apr 2023 – Sep 2023**
[Project Page](#), [PDF](#), [Code](#)
 Developed a human pose prediction model composed of convolutional layers and Squeeze-and-Excitation blocks; reduced the Mean Per Joint Position Error (MPJPE) by 2.9% over the baseline transformer model
- Seminar in Computer Vision** **Sep 2023**
[Report](#), [Slides](#)
 Presented a paper “Panoptic lifting” on 3D semantic segmentation with TensorRF backend; compared with 4 subsequent works
- HackaTUM Hackathon** **Nov 2022**
1st place ([Project Page](#))
 Collected a dataset of 57 3D scans with a microwave detector; trained a ResNet-based model to recognize 3 types of recyclable waste with 73% accuracy
- TUM ML4Earth Hackathon** **Oct 2022**
1st place ([Project Page](#), [Code](#))
 Trained a 5-layer MLP-based network to predict soybean yields in 190 US counties over 5 years; reached 11% test set error

ADDITIONAL EXPERIENCE AND AWARDS

- Teaching assistant, Moscow State University** **Feb 2021 – Jan 2022**
 Instructed groups of 20 undergraduates in the “Programming and Computer Science” course; average grades 4.7 out of 5.0
- Scholarship for outstanding students, Moscow State University** **Sep 2020 – May 2022**
 Awarded to top 5% of all students
- Moscow Informatics Olympiad** **May 2020**
 3rd place out of 70+ teams