

Ivan GERASIMOV

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Profile

Astronomer and data scientist finishing a PhD in Astrophysics at Université Côte d'Azur (France), with 6+ years of turning large, noisy datasets into published results (2 first-author papers). Builds products end to end: Telegram bots with 100,000+ monthly users and an AI video-anonymisation tool combining 8+ open models. Learns new fields fast. Looking for roles in AI consulting, product management and Industry 4.0 consulting.

Skills

- **Programming**: Python (main: NumPy, SciPy, pandas, Matplotlib, Astropy, aiogram), Bash, C/C++ (basic), LaTeX, git, SQL, Jupyter
- **Data & modelling**: Data cleaning and reduction pipelines, statistical analysis, model fitting, spectral and image analysis, data visualisation
- **Engineering**: Optical design (Zemax), 3D mechanical design (SolidWorks), prototyping, assembly and testing of hardware
- **AI & ML**: Hugging Face (transformers, model hub), CoreML; computer-vision (segmentation, pose estimation, depth); daily use of LLM assistants (Claude, ChatGPT) for coding, data analysis and writing
- **Communication**: Technical writing (11 peer-reviewed papers, 2 first-author), international conference talks, teamwork in international collaborations
- **Languages**: French (lower intermediate), English (fluent), Russian (native)

Experience

PhD Researcher — Nice, France
Université Côte d'Azur, Lagrange Laboratory; member of the PHANGS international collaboration — *Oct 2024 – present*

- Investigated how the environment of star clusters relates to their age, combining multi-wavelength data from ground- and space-based telescopes.
- Analysed multi-wavelength data to measure star-cluster ages and the structure of the surrounding gas.
- Developed a Python pipeline that automates visual inspection and robustly measures structural parameters; validated on a smaller sample and designed to scale to catalogues of 100,000+ star clusters.
- First-author paper in preparation; results presented at 5 conferences.
- Helped organise seminars and conferences.

Junior Researcher — Moscow, Russia
Sternberg Astronomical Institute, Lomonosov Moscow State University — *Sep 2019 – Sep 2024*

- Collected data in ∼40 nights of observations on a 2.5-m telescope (spectroscopy, optical and near-IR imaging, polarimetry).
- Built data reduction for raw data from two telescopes (2.5-m CMO SAI MSU; 6-m BTA SAO RAS), turning instrument output into calibrated, analysis-ready datasets.
- Analysed multi-instrument data (incl. integral-field spectroscopy from MUSE at ESO's Very Large Telescope) to measure gas chemistry, physical conditions and motions in galaxies.
- Led the analysis and writing of 2 first-author papers in MNRAS, a leading astronomy journal; co-authored 3 more.

Hardware Prototyping Project – Wavefront Sensor — Moscow, Russia
Sternberg Astronomical Institute, supervisor Dr. Boris Safonov — *2022 – 2023*

- Took a Shack–Hartmann wavefront sensor from idea to working telescope instrument: 3D design (SolidWorks), optical simulation (Zemax), sourcing parts, assembly and alignment.
- Tested it in the lab with a laser source and installed it on a 0.7-m telescope.

Side Projects

- **AI video anonymisation tool**: Built with AI coding agents: a Python tool that anonymises recorded video and live calls: replaces the person with a stylised render, blurs the face and converts the voice into a synthetic one. Combines 8+ open models (Meta Sapiens, Depth Anything V2, MediaPipe, kNN-VC, WavLM) and automatically verifies anonymity (speaker-similarity score, face detection). Optimised for Apple Silicon (CoreML, Neural Engine): live mode runs at ∼23 fps.
- **Promo-code bot**: Telegram bot delivering promo codes for a popular online game; 100,000+ monthly users. Built user analytics to guide content and advertising. Python (aiogram, SQLAlchemy), PostgreSQL.
- **Horoscope bot**: Telegram bot sending personalised daily horoscopes by zodiac sign; 20,000+ monthly users. Python (aiogram, SQLAlchemy), PostgreSQL.
- **MeerKAT radio project**: Wrote a successful observing proposal for the MeerKAT radio telescope, awarded 10 hours of observing time in a competitive call. Analysed the data to map neutral hydrogen in galaxies and modelled gas dynamics.

Education

Université Côte d'Azur — Nice, France
PhD in Astrophysics — *2024 – expected 2027*

Lomonosov Moscow State University — Moscow, Russia
Specialist degree (BSc + MSc equivalent) in Astronomy, GPA 4.53/5 — *2018 – 2024*

Additional Experience

Assistant Mathematics Teacher Moscow, Russia
High-school courses *Sep 2021 – Sep 2023*
– Helped teach introductory calculus (limits, integrals) to high-school students in classroom courses.

Undergraduate Research Projects Moscow, Russia
Sternberg Astronomical Institute *2020 – 2021*
– Upgraded an optical all-sky camera used for automated weather monitoring at the observatory.
– Measured how gas motions differ between emission lines in galaxy spectra.

Selected Publications

11 peer-reviewed papers (2 first-author), 68 citations (NASA ADS). Full list: ORCID

- **2024**: **Gerasimov I. S.**, et al., "Stellar feedback impact on the ionized gas kinematics in the dwarf galaxy Sextans B", MNRAS, 529, 1138
- **2022**: **Gerasimov I. S.**, et al., "Stellar feedback impact on the ionized gas kinematics in the dwarf galaxy Sextans A", MNRAS, 517, 4968

Selected Talks

- **2023**: Asia-Pacific Regional IAU Meeting, Koriyama, Japan
- **2023**: PNCG Thematic Days, Paris, France (online)
- **2020–2023**: 5 talks at national conferences in Russia (Moscow, Kourovka)

Awards, Grants and Training

- **2023–2024**: Individual research grant, "BASIS" Foundation for theoretical physics and mathematics (competitive)
- **2023**: Scholarship for outstanding scientific results (awarded twice)
- **2023**: European Adaptive Optics Summer School
- **2018–2024**: Scholarship of the President of the Russian Federation