Nikita Vaulin

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Education

MSc in Life Sciences   Sept 2022 – Jun 2024
Skolkovo Institute of Science and Technology   Moscow, Russia

Bioinformatics for biologists advanced training year program   Sept 2022 – Jun 2023
Bioinformatics institute

BSc in Biochemical physics   Sept 2018 – Jun 2022
Peter the Great St.Petersburg Polytechnic University   St.Petersburg, Russia

GPA 4.79 out of 5 (5 – the highest mark)

BSc thesis: «The role of the Cas3 nuclease and helicase domains
in the interference and primed adaptation in the type I-E CRISPR-Cas system»

Supervisors – Anna Shiriaeva, Ph.D. and prof. Konstantin Severinov

Data analysis in R, Python Programming, Statistics, Molecular phylogenetics   Online courses
Introduction to NGS, Introduction to Linux, Molecular biology and genetics   Stepik

Skills

Programming

R (ggplot2, tidyverse, knitr, emo), **Python** (Pandas, NumPy, Scikit-learn, Matlpotlib, Seaborn)
Git, **Bash** (scripts, SAM-tools, bwa, Trimmomatic), basics of FORTRAN and C++

Bioinformatics, works examples

NGS data processing, variant calling, RNA and protein structure analysis,
genome assembly, biostatistics and visualization in R, machine learning in Python;
Benchling, UGENE, PyMol, GAMESS, Monolix

Software

Latex, CorelDraw, Adobe Photoshop, DaVinci Resolve, Raspberry Pi3 и Arduino

Lab

ChIP-seq, 3-C, NGS libraries preparation, gene knock-out, work with *E. coli* and P1 phage

Research Experience

Research on functioning of type I CRISPR-Cas systems *in vivo* with NGS data   Oct 2020 – current
- Study of functioning of the Cas3 helicase-nuclease
- Studying the role of cellular nucleases in the operation of CRISPR-Cas systems

I perform all stages of the work from conducting experiments and
Illumina libraries preparation to analysis of sequencing data.

Skolkovo Institute of Science and Technology & *«NanoBio» research center, SPbPU* &
Institute of Molecular Genetics, National Research Centre «Kurchatov Institute»

Development of models for the *in-silico* generation of metagenomic communities   Jan 2023 – current

CT ITMO & Bioinformatics institute

Simulation of signal modulation and detection with NI Multisim   Apr 2020 – Nov 2020

I modeled an electrical circuit playing an old Nokia tune.
This work formed the basis for the electronics course homeworks for students.

Peter the Great St.Petersburg Polytechnic University

Teaching experience

Created my own short course «Workspace and workflow management in biology»   Jan 2023
Skolkovo Institute of Science and Technology, ISP

   In the course we covered such topics as Notion, Git and GitHub, Snakemake

Assistant on a machine learning course   Jan 2023 – current
Bioinformatics institute

Startup experience

Augmented whitestick for blind people   Sept 2022 – Oct 2023
Skolkovo Institute of Science and Technology

Responsible for the software development of a device that complements a whitestick
with a built-in ultrasonic sensor, laser sensor, computer vision, vibration and audio output.
Two prototypes were built: on an Arduino and on a Raspberry Pi 3 platforms.

Scientific workshops

1. «SCAMT Workshop Week», ITMO, St. Petersburg   30 Jan – 6 Feb 2022
   De novo assembly и annotation of *Darevskia raddei* lizard genome

2. **Mathematical modeling in drug development**, PopPK, «Sirius», Sochi   25 Apr – 1 May 2022

Awards and honors

1. Winner of the ISP Student Best Course Competition at Skoltech, Jan 2023
2. Scholarship of Distinction for achievements in scientific research, Sep 2021 – Dec 2021
3. Scholarship of Distinction for achievements in education, Jul 2020 – Jun 2022
4. Invitation to the SCAMT ITMO master's program without entrance examinations
   for success at «SCAMT Workshop Week»

Conference participation

1. «Genomics, metagenomics and molecular biology of microorganisms», poster, Nov 19 - 20 2022
2. VII Pushchino school-conference «Biochemistry, Physiology and Biospheric Role of Microorganisms», remote participation, Dec 6 – 9 2021
3. VIII Russian national scientific forum «Open Science 2021», poster, Nov 17 – 19 2021
4. PremC «Helicases and Nucleic Acid-Based Machines: Structure, Mechanism and Regulation and Roles in Human Disease», online, Jul 6 – 9, 2021
5. Russian national conference «Week of Science IFNiT», online, Nov 16 – 20, 2020

Extracurricular activities

Organizing a student bioinformatics club   Sept 2022 – current
Skolkovo Institute of Science and Technology

   Together we discuss the tasks from the Rosalind platform

Organizing a journal club   Feb 2023 – current
Bioinformatics institute

   I prepare topics for presentations, moderate the discussion

Assisting with the metagenome analysis Workshop   Sept - Oct 2022
Skolkovo Institute of Science and Technology

Former volunteer: Donor's Day SPbPU, Center for the Promotion of Science «SciTeam»,
North-West Public Organization of the Russian Federation of Cosmonautics