

ANYA KORSAKOVA

☎ +1 4154180014 ✦ San Francisco, CA

✉ anya@calicolabs.com [in](#) [LinkedIn](#) [🏠 website](#) [🔗 github.com/anyakors](#)

TECHNICAL SKILLS

| | |
|--------------------|---|
| Interests | computational biology; AI/ML applications; mechanistic interpretability; representation learning; technical analysis of financial markets |
| Programming | python, tensorflow, pyTorch, C++, bash, R |
| Tools | UNIX, Git, PyMOL, SolidWorks, Adobe Illustrator |
| Wet lab | CD, UV, fluorescence, NMR, Oxford Nanopore DNA/RNA seq |
| Compbio | genetic variant effect prediction, scVI-tools, AMBER MD |

RESEARCH AND WORK EXPERIENCE

Postdoctoral researcher (computational genomics)

@ David Kelley lab, Calico Life Sciences

May 2023-present

- Currently extracting insights from the flagship [Borzoï](#) DNA sequence-based model using sparse autoencoders
- Extended Borzoï model for scoring of indels, SVs and tandem repeats using align-and-stitch method at inference

Postdoctoral researcher, Cancer Science Institute of Singapore

Oct 2022-May 2023

- Improved algorithms for copy number signatures in breast cancer @ Jason Pitt / Ashok Venkitaraman lab
- Collaborated to consult on the best algorithmic practices for building ensemble approaches to mutational signature assignment

Quantitative finance analyst and developer, Juniper Investment, Singapore

Feb 2022-Sep 2022

- Built high profit-to-loss ratio quantitative trading models with in C++ (MQL5) and python using technical analysis

Ph.D. candidate, Nanyang Technological University, Singapore

Aug 2017-Jul 2022

- Built ML frameworks for DNA structure and RNA splicing prediction, nanopore sequencing, NMR and MD simulations @ Biophysics lab, Prof. Phan Anh Tuấn

Junior researcher, LPI RAS, Moscow

Jan 2014-Aug 2017

- Studied diffusive-thermal instabilities in hydrogen-air flames with computational modeling approaches

@ Laboratory of Nonlinear Dynamics and Biophysics, Dr. Vladimir Gubernov

Junior C++/algorithmic developer, NRNU MEPhI, Moscow

Dec 2012-Dec 2013

- Implemented an algorithm for eye iris recognition and tracking in live video stream with C++, openCV and Matlab

EDUCATION

Ph.D. in Biophysics, School of Physical and Mathematical Sciences

Aug 2017-Jul 2022

NTU (Nanyang Technological University, Singapore)

M.Sc. in Applied Mathematics and Physics NRNU MEPhI, Moscow

Sep 2014-Jun 2016

First Class Honors

B.Sc. in Applied Mathematics and Physics NRNU MEPhI, Moscow

Sep 2010-Jun 2014

RELEVANT PUBLICATIONS

Korsakova A et al., “Shift augmentation for improved indel scoring in DNA sequence-based ML models” to be submitted to *Nat Methods*

Wu AJ, Perera A, Kularatnarajah L, Korsakova A, Pitt JJ, “Mutational signature assignment heterogeneity is widespread and can be addressed by ensemble approaches” in *Briefings in Bioinformatics*, 2023, DOI:10.1093/bib/bbad331

Korsakova A, Phan AT, “Prediction of G4 formation in live cells with epigenetic data: a deep learning approach” in *NAR Genomics and Bioinformatics*, 2023, DOI:10.1093/nargab/lqad071

**Chan A, *Korsakova A et al.*, “RNA alternative splicing prediction with discrete compositional energy network” at ACM CHIL '21, DOI:10.1145/3450439.3451857 **contributed equally*

DATASETS

**Chan A., *Korsakova A. et al., “Context Augmented Psi Dataset (CAPD) to benchmark RNA alternative splicing prediction models” 2021, <https://doi.org/10.21979/N9/FFN0XH> *contributed equally*

PEER REVIEW

Nature Machine Intelligence ISSN: 2522-5839, reviewer, 2024

RESEARCH INTERNSHIPS

Wan Lab of RNA structuromics, Genome Institute of Singapore, Singapore Mar 2021-Jun 2021
RNA G4 structure probing in long synthetic RNA with NAI-SHAPE and nanopore sequencing

Lab of Biology and Applied Pharmacology, École normale supérieure Paris-Saclay, Paris Jun 2018-Aug 2018
Geometrical improvement of NMR RDC data usage for G4 structure resolution; NMR training

Institute of Technical Thermodynamics, Karlsruhe Institute of Technology, Karlsruhe Oct 2015-Nov 2015

TEACHING

Undergraduate student mentor *NTU, Singapore* 2018, 2020, 2021
Supervised students on an ML-genomic project and a nanopore sequencing project

From synthesis to quantification of DNA using UV absorption 2019, 2020
circular dichroism and fluorescence spectroscopy (PH3399) *NTU, Singapore*

Silicon Charge Particle Detectors (PH3199) 2018, 2019, 2020
Fabrication Laboratory (PH3199) *NTU, Singapore*

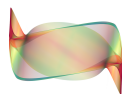
RECORDED MEDIA

open.spotify.com/episode/0WtAP3POmuJQNppueKY268 Art of Academia podcast '23
youtu.be/Miz3X953Q-0 on DNA Oxford Nanopore sequencing (in Russian, auto-generated English subtitles available)

HONORS AND AWARDS

SINGA scholarship award (NTU, Singapore) 2017-2021

NRNU MEPhI's Best Student Award 2015 (NRNU MEPhI, Moscow) 2015



PERSONAL DETAILS

Date of birth: 16 Jan 1993
Nationality: Russian
Gender: Female
Languages: English (fluent), Russian (native), French (elementary)
Interests: Algorithms, beat production and music synthesis, pole sports