

ANNA KORSAKOVA

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TECHNICAL SKILLS

Algorithmic	tensorflow, pyTorch; machine learning applications; technical analysis; mechanistic interpretability; excellent knowledge of statistics
Programming	python, C++, bash, R
Tools	UNIX, Git, PyMOL, SolidWorks, Adobe Illustrator
Wet lab	CD, UV, fluorescence, NMR, Oxford Nanopore DNA/RNA seq
Compbio	Variant effect prediction, scRNA-seq and snATAC-seq analyses

RESEARCH AND WORK EXPERIENCE

Postdoctoral researcher , Calico Life Sciences Computational genomics @ David Kelley lab Variant effect prediction for indels, SVs and tandem repeats; mechanistic interpretability of ML models	May 2023-present
Postdoctoral researcher , Cancer Science Institute of Singapore Investigated copy number signatures in breast cancer @ Jason Pitt / Ashok Venkitaraman lab	Oct 2022-May 2023
Part-time quantitative finance analyst and developer , Juniper Investment, Singapore Built quantitative trading models with in C++ (MQL5) and python using technical analysis	Feb 2022-Sep 2022
Ph.D. candidate , Nanyang Technological University, Singapore <i>Biophysics lab, Prof. Phan Anh Tuan</i> Thesis: "DNA/RNA structure and processing <i>in vitro</i> and in cells: from probing to prediction"	Aug 2017-Jul 2022
Junior researcher , LPI RAS, Moscow <i>Laboratory of Nonlinear Dynamics and Biophysics, Dr. Vladimir Gubernov</i> Studied diffusive-thermal instabilities in hydrogen-air flames with computational modelling approaches;	Jan 2014-Aug 2017
Junior C++/algorithmic developer , NRNU MEPhI, Moscow Implemented an algorithm for eye iris recognition and tracking in live video stream with C++, openCV and Matlab	Dec 2012-Dec 2013

EDUCATION

Ph.D. in Biophysics, School of Physical and Mathematical Sciences NTU (Nanyang Technological University, Singapore)	Aug 2017-Jul 2022
M.Sc. in Applied Mathematics and Physics NRNU MEPhI, Moscow <i>First Class Honors</i>	Sep 2014-Jun 2016
B.Sc. in Applied Mathematics and Physics NRNU MEPhI, Moscow	Sep 2010-Jun 2014

RELEVANT PUBLICATIONS

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

Google Scholar: scholar.google.com/citations?user=5A3VUGMAAAAJ

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

CONFERENCES

Korsakova A. et al., "Shift augmentation for improved indel scoring in DNA sequence-based ML models" (poster) – Reviewers' Choice Award, ASHG (American Society of Human Genetics) Annual Meeting, Denver, CO 2024

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

chilconference.org/proceeding_P19.html RNA alternative splicing prediction, ACM-CHIL'21

youtu.be/Miz3X953Q-0 on DNA Oxford Nanopore sequencing (in Russian, auto-generated English subtitles available)

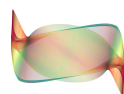
open.spotify.com/episode/0WtAP3POmuJQNppueKY268 Art of Academia podcast '23

HONORS AND AWARDS

CoS ScienceArt Competition winner (NTU, Singapore) 2020

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 acrobatics