EKATERINA DAGKESAMANSKAIA
Bioinformatician

Groningen, Netherlands · dagkesamanskaya@gmail.com · + 31616771935

WORK EXPERIENCE

UNIVERSITY MEDICAL CENTER GRONINGEN — **Groningen, The Netherlands**
Postgraduate research project on Brain Disorders — **2023-2025**

- Preprocessed and analyzed in-house and open bulk transcriptome, isoform, and DNAme data on mental disorders using differential expression and weighted gene co-expression network analysis
- Set up RNAseq variant calling pipeline on HPC cluster
- Calculated polygenic risk scores using public GWAS sumstats using SbayesRC and PRSet
- Developed pipeline for Dutch medication term extraction from text
- Created ontology for Netherlands Brain Bank neuropathological attributes
- Contributed data analysis to 2 publications

DIGITAL GENOMICS — **Moscow, Russia (Remotely)**
Bioinformatician — **2022**

- Developed a pipeline for analysis of cancer secondary cell lines on passenger and oncogenic SNPs & CNVs
- Created database architecture and prototype in MongoDB

SEMANTIC HUB LTD. — **Moscow, Russia (Remotely)**
Data Analyst in Precision Medicine — **2020-2021**

- Completed 5 projects on orphan diseases: statistical modeling & visualization of patient journey data
- Constructed queries and analyzed data from ArangoDB in AQL

EDUCATION

SKOLKOVO INSTITUTE OF SCIENCE AND TECHNOLOGY — **Moscow, Russia**
M.Sc. in Life Sciences — **2020-2023**

- *Thesis:* Prediction of 3D Genome Folding Based on Multi-Omics Data in Python

RUSSIAN STATE UNIVERSITY FOR THE HUMANITIES — **Moscow, Russia**
B.Sc. in Intelligent Systems — **2016-2020**

- *Thesis:* Software Tools for the Improvement of Prediction Completeness by the JSM-Method for Pancreatic Diseases Diagnosis in Precision Medicine in C#

INTERNSHIPS

MAX PLANCK INSTITUTE OF NEUROBIOLOGY — **Munich, Germany (Remotely)**
Bioinformatics Intern in Mayer Lab of Neurogenomics — **2022**

- Preprocessed datasets of transcriptome and lineage data with CellRanger, visualized with Seurat

GENETICO LTD. — **Moscow, Russia**
Intern in Mitochondrial Bioinformatics — **2021**

- Tested performance of mitochondrial-specific vs general variant calling (GATK, Freebayes, HaplotypeCaller)

MONTPELLIER CELL BIOLOGY RESEARCH CENTER CNRS — **Montpellier, France**
Intern in Structural Bioinformatics — **2019**

- Analyzed and compared algorithms of 20 structure- and sequence-based predictors of mutation impact on protein structure

SKILLS

Omics and genetic data analysis

- Raw RNA-seq and DNA sequencing data pre-processing: mapping, filtering, quality control
- Differential gene expression analysis in R using DESeq2 and edgeR-limma and WGCNA
- Sequence analysis using sequence alignment tools & databases (BLAST, UCSC, GEO, ENSEMBLE)
- Genetic data analysis: preprocessing and quality control with plink, polygenic risk score calculation

Programming

- Fluent in Python, R and Bash, Operational level of SQL
- Acquainted with C++, C#, Java, Kotlin, JavaScript, Prolog, Lisp

Libraries & Frameworks

- **R:** DESeq2, edgeR-limma, Seurat, **Python:** Pandas, SciKit-Learn; Nextflow; Snakemake; **VCS:** Git, **HPC:** slurm

Soft skills

- Project management, zero-resources event-making

Languages

- English — C1, IELTS 7.5, Russian — Native, German, Dutch, French — A2

CONFERENCES

NATIONAL BIOINFORMATICS CONFERENCE BIOSB-2025 **Baarlo, Netherlands**
Speaker **2025**
Decoding mental disorders: multi-omics integration of dimensional psychopathology and brain molecular profiles

UMCG DEVELOPMENT AND AGEING PHD DAY **Groningen, Netherlands**
Research Pitch **2025**
Disentangling genetic predisposition to psychiatric disorders

VOLUNTEERING

Human Rights Projects **2021-2025**

- Project Manager and Volunteer Coordinator of Playground Tbilisi for children from Ukraine
- Web-designer in humanitarian aid point Choose to Help
- Database QA-testing in Independent Russian Human Rights Defense & Media Project Ovd-Info

Sci-Pop & Architecture Projects **2020-2022**

- Organized 4 sci-pop local tourism urban festivals “Path to the forest” in Puschino scientific town
- Developed the concept and won a grant for the main square revitalization of Puschino scientific town

Educational Projects **2018-2020**

- Led a course on Rational thinking in Puschino Winter School
- Organized 2 Traditional Olympiads in Linguistics as a committee member

PUBLICATIONS

- **Identification of clinical disease trajectories in neurodegenerative disorders with natural language processing** – Mekkes NJ, Groot M, Hoekstra E, de Boer A, **Dagkesamanskaia E**, Bouwman S, Wehrens SMT, Herbert MK, Wever DD, Rozemuller A, Eggen BJL, Huitinga I, Holtman IR.. **Nature Medicine 2024** Apr; 30(4):1143-1153. doi: 10.1038/s41591-024-02843-9. Epub 2024 Mar 12. PMID: 38472295; PMCID: PMC11031398

- **Disentangling the heterogeneity of multiple sclerosis through identification of independent neuropathological dimensions** – de Boer A, van den Bosch AMR, Mekkes NJ, Fransen NL, **Dagkesamanskaia E**, Hoekstra E, Hamann J, Smolders J, Huitinga I, Holtman IR. **Acta Neuropathologica 2024** May 21;147(1):90. doi: 10.1007/s00401-024-02742-w. PMID: 38771530; PMCID: PMC11108935

REFEREES

Prof. Andrey Kajava,
CNRS CRBM, France
andrey.kajava@crbm.cnrs.fr

Assist. Prof. Inge R. Holtman,
UMCG, Netherlands
i.r.holtman@umcg.nl

Prof. Georgii Bazykin,
Emory University, US
georgii.a.bazykin@emory.edu