Kornel Labun

Phone: +47 40574163
E-mail: kornel.labun@gmail.com
Website: kornellabun.com
Github: https://github.com/JokingHero
Judge my R: https://github.com/valenlab/amplican

EDUCATION

2015 - 2019   **PhD:** University of Bergen, Department of Informatics, Computational Biology Unit

2009 - 2014   **MSc. Eng.**: Silesian University of Technology, Faculty of Automatic Control, Electronics and Computer Science; **Biotechnology**, spec. **Bioinformatics**
- Awarded (2nd place) in Best Students' Scientific Circle of Bioinformatics Projects in 2011/2012 Competition.

RESEARCH EXPERIENCE

2020 -   Postdoctoral fellow (supervisor: Eivind Valen)
- Development of tools for off-target detection for genome editing with **CRISPR**, enabling precision medicine
- Applying Oxford **Nanopore** technology for modification detection
- Analyzing Ribo-seq and TCP-seq datasets for **metastasis** signature

2015 - 2019   PhD: *"In silico design and analysis of gene editing experiments."* (supervisor: Eivind Valen)
- Analysis of RNA-Seq, Ribo-Seq, Cage-Seq, ATACK-Seq, SMS-seq and other ***-Seq** kind of datasets, as well as Oxford **Nanopore** sequencing data (noisy signal over time)
- Development of pipelines and **tools** (ORFik, ampliCan, RareVariantVis, CHOPCHOP, tailfindR, CRISPRofftargetHunter)
- **Machine learning** related projects: prediction of polyA tail from nanopore data, prediction of repair profile after CRISPR edits
- Teaching for courses: INF207 (**Social Network Theory**), INF109 (**Computer Programming for Science**), and **R Crash Course** for Molecular and Computational Biology Research School and NORBIS

2013 - 2014	"Spatial evolutionary games as a tool for modeling inter-population interactions". MSc dissertation (supervisor: Prof. Andrzej Świerniak)

- **Evolutionary game theory** in the cellular automaton to solve differential equations

2012 - 2013	"Seeking for the signature of radiosensitivity with the use of data on single nucleotide polymorphisms and the results of γ-H2AX test with the expressions of the chosen DNA repair genes." Eng project (supervisor: Prof. Joanna Polańska)

- Modeling gene expression changes using **statistics**

SELECTED PUBLICATIONS   Equal contributions are <u>underlined</u>

CHOPCHOP v3: expanding the CRISPR web toolbox beyond genome editing.
Labun K, Montague TG, Krause M, Torres Cleuren YN, Tjeldnes H, Valen E
Nucleic acids research, 47(W1):W171–W174. (2019)

CHOPCHOP v2: a web tool for the next generation of CRISPR genome engineering.
Labun K, Montague TG, Gagnon JA, Thyme SB, Valen E
Nucleic acids research, 44(W1):W272–6 (2016)

Accurate analysis of genuine CRISPR editing events with ampliCan.
Labun K, Guo X, Chavez A, Church G, Gagnon JA, Valen E
Genome Research , 29 (5) (2019)

Rapid genome editing by CRISPR-Cas9-POLD3 fusion.
<u>Reint G, Li Z</u>, **Labun K**, ..., Valen E, Schmierer B, Varjosalo M, Taipale J, Haapaniemi E
eLife 10.7554/eLife.75415 (2021)

tailfindr: alignment-free poly(A) length measurement for Oxford Nanopore RNA and DNA sequencing.
<u>Krause M, Niazi AM</u>, **Labun K**, Torres Cleuren YN, Müller FS, Valen E
RNA , 25(10):1229–1241. (2019)

ORFik: a comprehensive R toolkit for the analysis of translation
Tjeldnes H, **Labun K**, Torres Cleuren YN, Chyżyńska K, Świrski M, Valen E

WORK EXPERIENCE

2020 -	**Postdoctoral fellow** at University of Bergen in the ValenLab.
2019 - 2020	**Senior Consultant** at Sonat Consulting AS - Machine learning/AI, data analysis, ETL/ELT and databases, DevOps, Agile/Lean, Google Cloud Platform/Microsoft Azure
2015 - 2019	**PhD candidate** at the University of Bergen in the ValenLab.

2014 - 2015   **Software engineer/data analyst** at "rspective" - front-end and back-end website development, machine learning solutions and data analysis, quality assessment, architectural design and deployment.

Aug 2011   **Internship** at Maria Sklodowska-Curie Memorial Cancer Center and Institute of Oncology Gliwice Branch, Department of Nuclear Medicine and Endocrine Oncology

TEACHING EXPERIENCE

May 2021   Organizer and teacher of **R Crash Course** for NORBIS

May 2019   Organizer and teacher of R Crash Course for MCB research school

Autumn 2018   Institute of Informatics/University of Bergen - Subject: INF207 (**Social Network Theory**), Teaching exercises on blackboard.

Spring 2018   Institute of Informatics/University of Bergen - Subject: INF109 (**Computer Programming for Science**), Designing homework assignments and grading them.

Nov 2017   Organizer and teacher of R Crash Course for MCB research school

Spring 2017   Institute of Informatics/University of Bergen - Subject: INF109 (Computer Programming for Science), Designing homework assignments and grading them.

Autumn 2016   Institute of Informatics/University of Bergen - Subject: INF207 (Social Network Theory), Teaching exercises on blackboard.

ADDITIONAL INFORMATION

Programming languages	**R, python**, **Julia,** JavaScript, Java (Android), Matlab + Simulink, LabView
Frameworks	**Bioconductor, tidyverse, Keras, TensorFlow (& Lite), tidyverse, scikit-learn,** Node.js, AngularJS, Express, D3.js
Cloud	Google Cloud Platform, Microsoft Azure
PaaS & SaaS integrations	Heroku, Openshift, Twilio, Nexmo, MailChimp Dropbox etc.
Databases	MongoDB, Redis, MySQL
Containerization	Docker, conda, renv, virtualenv

Version control systems	Git
Other	Statistics, parallel computing with computational clusters, linux
Languages	Polish (native), English (fluent), Norwegian (basic)
Memberships	World Chess Federation, Bergen Judo Club

INTEREST AND ACTIVITIES	SCIENTIFIC INTERESTS
chess	**biostatistics**
books	**bioinformatics**
judo	**design patterns**
watercolor	**blockchain**
manga	**machine learning**

Please contact me for my references.