Serli Kopar

Second year FOKUS Life Sciences M.Sc.

PERSONAL DATA

Born on 05/05/2000 | Age 24

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LANGUAGES

Turkish - Native Language

German - C1 - DSD2: 90/96

English - C1 - TOEFL: 106/120

Russian - B1 - University Certification

Spanish - B1 - University Certification

AWARDS / HONOURS

DAAD Full Scholarship 10/19 -/10/22

National Chemistry Olympiad in Turkey
Third place in the district 25/10/18

Undergrad Rostock Scholarship 07/18

CERTIFICATES

R for Programmers

Visualize and Analyze Data with Python

Command Line Linux and Python 3

Introduction to Genomic Technologies

Python for Genomic Data Science

Whole Genome Sequencing of Bacterial Genomes Tools and Applications

EDUCATION

2022-Ongoing

Master's Degree — Würzburg, Germany
University of Würzburg
Faculty of Biology and Computer Science
International FOKUS Life Sciences Fast-track M.Sc. & Ph.D.
Minor in Computer Science - since 04/2023
Selected Lectures: *Single Cell Sequencing, Machine Learning for Natural Language Processing, Graph Neural Networks, Data Mining, Reinforcement Learning for Decision Making & Optimal Control*
Current GPA: 4.0/4.0

2019-2022

Bachelor's Degree — Erlangen, Germany
University of Erlangen-Nürnberg
Faculty of Medicine
Molecular Medicine Selected Lectures: *Microbiology, Immunology and Virology, Neurophysiology and Neuroanatomy, Human Genetics, Biometry and Epidemiology,Pharmacology and Toxicology*

RESEARCH ACTIVITIES

12/23-Today

AI Tutor — remote
Technical University of Munich
Pivotal role in a statewide educational initiative
As an AI Tutor at the Technical University of Munich, I fine-tuned a local Mistral 7B model to create a chatbot for physiochemistry lectures and medical case assistance. I also enhanced educational experiences by enriching course materials, creating quizzes, developing multimedia resources, and organizing workshops and events.

08/23-Today

Internship & Master's Thesis — Würzburg
Max Planck Research Group for Systems Immunology
ML in Single cell RNA-sequencing
Prof. Dr. rer. nat. Dominic Grün - My project benchmarks single-cell sequencing methods by developing algorithms with Graph Neural Networks (GNNs) and Natural Language Processing (NLP). It enhances latent space representations to integrate spatial data, focusing on explainable AI for better analysis of cellular heterogeneity and gene expression patterns.

09/22-05/23

Three Internship Rotations — Würzburg
Helmholtz Institute for RNA-based Infection
Nanopore sequencing and CRISPR ML applications
Prof. Dr. Antoine-Emmanuel Saliba - Bioinformatical Analysis of Single Cell Sequencing Data
Jun.-Prof. Dr. Lars Barquist - Developement of automated machine learning prediction models to quantify bacterial CRISPRi guide efficiency
Jun.-Prof. Dr. Redmond Smyth -Nanopore Sequencing of Vaccinia, Comparative Bioinformatical Analysis of Flongle vs Minion Cells

10/21-08/28

Bachelor's Thesis
& Student Laboratory Assistant — Erlangen
Virological Institute of the University Hospital
Cancer drugs repurposing
Prof. Dr. rer. nat. Manfred Marschall- Developement of experimental approaches to exploit the cytomegalovirus nuclear egress complex as an antiviral target

05/21-12/20

Student Research Assistant — Erlangen
Institute of Mathematics - Chair of Analytics Mixed- Integer Optimization
COVID 19 data mining
Dr. Bismark Singh- Implementation of mathematical models to investigate equitable allocation of vaccines for Covid-19 strategies

COMPUTATIONAL SKILLS

PyTorch / PyG | Large Language Models | Graph Learning | Statistics | Information Theroy | Analysis of Sequencing Data | Docker/Anaconda/VCS Proficiency | Nanopore & Single cell sequencing | Python | R | MATLAB | LaTeX | SQL

LAB SKILLS

Cell Culture S1-S3 | PCR | Western Blot | Immuno-histo chemistry | Purification | Animal Experiments

PUBLICATIONS

An antiviral targeting strategy based on the inducible interference with cytomegalovirus nuclear egress complex Kicuntod, J., Häge S., Lösing J., **Kopar S.** , Muller Y.A., Marschall Manfred, April 2023,DOI: 10.1016/j.antiviral.2023.105557

The Oligomeric Assemblies of Cytomegalovirus Core Nuclear Egress Proteins Are Associated with Host Kinases and Show Sensitivity to Antiviral Kinase Inhibitors, May 2022,DOI: 10.3390/v14051021

EXTRA-CURRICULARS

- PASCH Alumni Association Elected Speaker
  PASCH Mentoring-Program - since 05/22
- European Engineering Learning Innovation Science Alliance Board Member - since 04/21
- DAAD Online Event Organisator
- Studenten bilden Schüler e.V. - 05/21-08/22
  Teaching students with migration background
- Commission for Internationalization- SS 22

REFERENCES

- Prof. Dr. Dominic Grün, dominic.gruen@uni-wuerzburg.de
- Prof. Dr. Ingo Scholtes, ingo.scholtes@uni-wuerzburg.de
- Prof. Dr. Manfred Marschall, manfred.marschall@fau.de

WORK EXPERIENCE

10/23-Today — **Research Assistant** — Würzburg
Max Planck Research Group for Systems Immunology
Main Method: Mice Genotyping
Assisting senior researchers with mouse and transduction experiments

10/23-04/24 — **Teaching Assistant** — Würzburg
University of Würzburg
Main Method: Grading students based on weekly assignments
Lecture Series "Methods in Life Sciences" for Bio-sciences Master Students

10/22-01/24 — **Student Assistant in Diagnostics** — Würzburg
University Hospital Würzburg
Main Method: ELISA and PCR
Testing swap, blood and urin samples of patients for diagnosis and clinical studies

04/22- 09/22 — **Research Data Analyst** — Erlangen
Institute for Medical Informatics, Biometry and Epidemiology (IMBE)
Main Method: MatLab + RStudio
Prof. Dr. rer. nat.Olaf Gefeller-Developement of connected models and investigation of epidemiological risk concepts for clinical studies

04/22- 09/22 — **Teaching Assistant** — Erlangen
Emil Fischer Centre
Grading students based on weekly assignments
Lecture Series "Biochemistry 1 and 2" for Medical Students

02/21-04/21 — **Student Assistant** — Erlangen
Karow Lab
Concentrating predominantly on organoid growth
Prof. Dr. rer. nat. Marisa Karow- Study of new molecular targets for navigating and correcting defective neurogenesis

INVITED TALKS & WORKSHOPS

Level Up Your Machine Learning: Hands-on Exploration of Linear Models to Deep Learning @Max Planck Systems Immunology lab retreat, June 21 2024. In this workshop, I showed participants the power of machine learning through a hands-on exploration. We started by building a foundation in linear models, then I used Multi-Layer Perceptrons (MLPs) to introduce the concept of neural networks. Finally, we delved into the exciting world of Graph Neural Networks (GNNs) and explored various Deep Learning techniques.

Fine-Tuning the Future: AI-Powered Chatbots Revolutionize Physico-Chemical Education in Lectures @6. Symposium of WueDive and QUADIS,May 24 2024. As an AI tutor, I developed a chatbot for physico-chemical lectures using the Mistral7B base model for fine-tuning, leveraging lecture notes as training data which were carefully preprocessed. This model was successfully presented in this talk and is currently implemented in lectures, enhancing student learning by overcoming communication barriers and providing flexible study times.

Unleashing the Power of LLMs: A Hands-on Workshop on Prompting Techniques for Educators Across Disciplines @Day of Good Teaching of the Bavarian State Ministry of Science and Art, April 10 2024. In this interactive workshop, I equipped educators from all disciplines with the skills to leverage Large Language Models (LLMs) effectively in their classrooms. We explored the CLEAR prompting method (Clear, Long, Emphasizing, Asking, Refining) through hands-on exercises. This method empowers educators to craft powerful prompts that unlock the full potential of LLMs and enhance the learning experience.