

Nikola Kalábová

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Education

Charles University (Prague, Czech Republic)	MSc. in Artificial Intelligence	2021 – now
Charles University (Prague, Czech Republic)	BSc. in Bioinformatics	2018 – 2021
Friedrich Schiller Gymnasium (Pirna, Germany)	Abitur	2012 – 2018

Work Experience

Teaching Assistant for Introduction to Linux	2021 – now
Department of Distributed and Dependable Systems, Faculty of Mathematics and Physics, Charles University	
Research internship	2020 – now
Institute of Biotechnology, Czech Academy of Sciences	

Projects

Neural networks QSPR model (GitHub)	2021 – now
Prediction of physicochemical properties for a variety of molecules using graph-informed feature extraction and (1) a neural networks for significant performance or (2) a simple linear regression model for explainability.	
Calculation of dihedral angles in DNA molecules	Institute of Biotechnology 2020 – now
Information extraction from CIF files. Dihedral angles calculation for further classification of DNAs.	
KD-tree for periodical data (GitHub)	Institute of Biotechnology 2020
A tool for fast search for nearest neighbours in a large data set of periodical data with the usage of KD-trees.	
Calculation of the area of planar shapes by the Monte Carlo method	
Faculty of Nuclear Sciences and Physical Engineering	2016
First encounter with real research, output of which was a scientific paper and a presentation.	

Skills

Programming:	C#, Python, R, Unix, Git, Networkx, Matplotlib
Software:	PyMol, Latex, Docker, Adobe Photoshop
Mathematics:	Graph Theory, Algebra, Linear Algebra, Mathematical Structures

Languages

Czech:	C2 level (native)	German:	C1 level (A-levels from German as native language)
English:	C1 level (TOEFL score 101)	Russian:	A1 level

Extracurricular activities

Organizer of mathematics competition for middle schools Pikomat	2018 - now
Main organizer for two years.	
Science week on Faculty of Nuclear Sciences and Physical Engineering	2016

Interests

Complex Networks, Bioinformatics, Mathematical structures, Artificial intelligence