David Beinhauer

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LINKS AND CONTACT

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EDUCATION

MSC. IN BIOINFORMATICS

Charles University | Prague
Sep 2022 - Jun 2025
GPA: 1.33 (1-4| 1 is the best)

BSC. IN COMPUTER SCIENCE

Charles University | Prague
Sep 2019 - Sep 2022
Artificial Intelligence/Machine learning.
GPA: 1.28 (1-4| 1 is the best)

SKILLS

Knowledgeable
Python

Familiar
C++ •Bash • Julia

Technologies Used
Git • AWS (S3, Lambda, EventBridge) • HPC • Docker • PyTorch • PyMol •Terraform (familiar with)

Computer science
ML • Deep learning • NLP • Software Development • Cluster Computing • Linear algebra • …

Bioinformatics
Computational neuroscience • Biological Data Processing • Structural Biology • Genomics • …

LANGUAGES

Czech - Native proficiency
English - Professional proficiency
Spanish - Elementary proficiency

EXPERIENCE

MSD CZECH REPUBLIC | NLP Intern

Oct 2023 - Present | Prague

- Collaborated within the Custom Engineering AI group to develop natural language processing (NLP) solutions, primarily using large language models (LLMs), to support various internal teams.
- Participated in the software development utilizing technologies such as: Git, AWS, Docker, Terraform
- Contributed to projects such as:
  - Participating in project utilizing LLM techniques to draft initial version of internal medical documentation.
  - Developing a demo of a Retrieval-Augmented Generation (RAG) solution for retrieving information from a database of internal scientific papers.
  - Developing library for company wise RAG application.
  - Extracting target abstracts from scientific papers.
  - Validating metadata accuracy by analyzing extracted text from scientific papers.

PROJECTS

MODELING SPATIO-TEMPORAL DYNAMICS IN PRIMARY VISUAL CORTEX USING DEEP NEURAL NETWORK MODEL | MSc. thesis

- Implemented extensive modeling framework in Python utilizing PyTorch and complex deep learning techniques focusing on recurrent neuronal networks (RNN).
- Ran large scale experiments on HPC (Metacentrum).
- Developed framework and conduced complex data analysis of experiment results.
- Developed a biologically realistic model of the primary visual cortex (V1) using modular, multi-layered RNN.
- Mapped synthetic neurons on a one-to-one basis with those from a state-of-the-art spiking neural network model of V1.
- Code Github:// **dbeinhauer/mcs-source**
- Text Github:// **dbeinhauer/mcs-thesis**

OPTIMIZATION OF THE PLACEMENT OF ELECTRIC VEHICLE CHARGING STATIONS | BSc. thesis

- Implementation of traffic simulator in C++.
- Data analysis in Python.
- Application of genetic algorithms and ML algorithms in order to optimize placement of the charging stations.
- Code Github:// **dbeinhauer/bcs-source**
- Text Github (only in Czech):// **dbeinhauer/bcs-thesis**

AWARDS

- **Scholarship for Academic Excellence** – Charles University
  - Awarded twice to the top-performing students of the academic year based on GPA.