David Beinhauer

david.beinhauer@email.cz

LINKS

Github:// **dbeinhauer**
LinkedIn:// **david-beinhauer**
Email:// david.beinhauer@email.cz

EDUCATION

MSC. IN BIOINFORMATICS

Charles University | Prague
Sep 2022 - Present
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 • SQL • C# • LaTeX

Technologies Used
Git • AWS • PyTorch • TensorFlow • Scikit-learn • PyMol

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.
- Contributed to projects such as:
  - Extracting target abstracts from scientific papers.
  - Developing a demo of a Retrieval-Augmented Generation (RAG) solution for retrieving information from a database of internal 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 (Ongoing)

- Conducted within the **Computational Systems Neuroscience Group (CSNG)** at Charles University.
- Developed biologically inspired deep neural network (DNN) models to study neural responses in the primary visual cortex (V1).
- Designed a multi-stage recurrent neural network (RNN) constrained by known anatomical structures to reflect the recurrent nature of biological networks.
- Trained the model on neural recordings from macaque V1 and synthetic data generated by a spiking V1 model.
- Introduced a novel approach by replacing RNN neurons with shared small DNNs to model complex non-linear spiking neuron behavior.
- Focused on capturing fine temporal dynamics of V1 responses to natural images.
- Code Github:// **dbeinhauer/mcs-source**

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.