

Fei Gao

Email fei.gao@uzh.ch

Telephone +41-768138725

EDUCATION

University of Zurich

M.A. in Computational Linguistics and Neuroinformatics (Grade 5.6/6.0)

Zurich

2022–2025

Sorbonne University

Licence 2 in Mathematics

Paris

2021–2023

The Ohio State University

B.A. in Linguistics (Major GPA 3.8/4.0)

Columbus, OH

2013–2017

RESEARCH EXPERIENCES

Institute of Neuroinformatics, University of Zurich and ETH Zurich

Master's Thesis

Zurich

01–08/2024

Supervisors: Prof. Dr. Richard Hahnloser, Prof. Dr. Nathalie Giroud

Collaborators: Maris Basha, Corinna Lorenz, Dr. Remo Nitschke, Yigit Demirag

- Processing complicated intracortical EEG recordings and song recordings of songbirds.
- Implemented ML algorithms (Liquid NN, S4, Liquid S4, and Hyena) to build (bird)brain-like models.
- Using trained models, along with fine-tuned LLMs, to interpret the neuronal dynamics of songbirds.
- Coordinate in a group between scientist from different disciplines.

Research in Orthopedic Computer Science Group, Balgrist University Hospital

Master's Project

Zurich

01–05/2024

Supervisor: Prof. Dr. Philipp Färnstahl

Collaborator: Ali Bahari Malayeri

- Design a series of in-ear EEG experiments to evaluate cognitive load, and collect data.
- Evaluate the validity of data collected in terms of reflecting high cognitive load in VR/AR surgeries.
- Implement the final product as a submodule to train surgeons with VR/AR methods as a part of the Innosuisse Flagship project PROFICIENCY.

Computational Neuroscience of Speech and Hearings Lab, University of Zurich

Research Intern

Zurich

06–11/2023

Supervisor: Prof. Dr. Nathalie Giroud

- Collect and analyze EEG data for an Innosuisse project, exploring individual-level musical sensitivity.
- Analyze activations across different wavebands and clusters in experiments ranging from musical sensitivity to auditory perception in VR.
- Coordinate with researchers, musicians, and industrial partners in grant applications through continuous communication and revisions.

POSTER AND PRESENTATION

Analysis and Comparison of the Human Voice and Orca Voice

05/2022

Presentation of an interdisciplinary exploratory project in Sorbonne University.

Conducted a focused study on the distribution of the human voice using Maximal Contrast and Dispersion-Focalization models. Obtained and Analyzed orca vocalizations from Pods J, K, and L in the Salish Sea from an online database, aiming to identify common themes and potential research pathways in bioacoustics for comparative study.

Kenning in Old Norse: A Unique Linguistic Feature

08/2017

Poster at the Universität Göttingen

Conducted a comprehensive analysis of hundreds of corpus texts in Old Norse (ON) and Old English (OE) poetry, examining the distribution and usage of various kennings (compound metonyms). The findings revealed a notable correlation and similarity between the majority of kennings used in OE and those in an Ancient Greek text. This suggests that the concept of 'kennings' in OE may encompass standard compound forms, diverging from the more narrowly defined kenning constructs traditionally seen in ON literature.

SCHOLARSHIPS

Accademia Vivarium novum — Scholarship of €9,000	08/2018
Georg-August-Universität Göttingen — Travel Grant of €1,100	08/2017

SKILLS

- Programming Languages: Python, Matlab, and C++
- Data analysis and Experiment design: (i)EEG, fMRI, speech, eye-tracking
- Musical composition and analysis

ADDITIONAL TRAININGS

NEUROSCIENCE

Neuroimaging Course <i>Turku PET Centre</i>	09/2023
Computational Psychiatry Course <i>ETH Zurich</i>	09/2023
Advanced Analysis of EEG Data <i>University of Zurich</i>	07/2023
12th IMPRS NeuroCom Summer School <i>Max Planck Institute for Cognitive and Brain Science</i>	06/2023
Workshop: Computational Neuroscience of Decision-Making <i>Princeton University</i>	01-03/2022

LINGUISTICS

Summer School "Empirical Methods in Vocal Identity Research" <i>University of Zurich</i>	09/2023
3rd Summer School in Historical Linguistics <i>University of Goettingen</i>	08/2017
12th Summer School in Language and Linguistics <i>Leiden University</i>	07/2017

MUSICAL TRAININGS

Classical Composition <i>City Conservatory of Paris</i>	2019-2022
Cycle Spécialisé in the classes of Stéphane Delplace, Fabien Touchard, Thibault Perrine, and François Saint-Yves.	
Organ <i>City Conservatory of Paris</i>	2020-2022
Intermediate cycle in the class of Jean-François Hatton.	
Harp <i>Private</i>	2017-2021
Studied with Marta Power and Nicolas Tulliez. Followed master classes of Isabelle Perrin and Isabelle Moretti.	
Harpist and Piano accompanist at the Tyrtarion ensemble of Accademia Vivarium novum.	

OTHERS

Advanced Certificate in C++ Programming <i>Washtenaw Community College</i>	01-05/2022
Fellow of Classical Studies <i>Accademia Vivarium novum</i>	2018

COURSEWORKS

Maching Learning, Natural Language Processing, Eye-tracking, Speech Experiments, Phonetics, Signal Processing, Neuroinformatics (ETHz), Neural Systems (ETHz), Brain-like Computation and Intelligence (EPFL), Neural Signal Processing (EPFL), Automatic Speech Processing (EPFL), Cellular Neuroscience (EPFL)

LANGUAGES

Native: Chinese(Mandarin, Wu Chinese)

Fluent: English, French, Middle Chinese, North-Western Chinese

Limited: Ancient Greek, Classical Latin, Old English, Middle English, Old Frisian, Old Norse, Old Persian, Middle Persian/Parthian, Farsi, Classical Sanskrit