Neil Scheidwasser-Clow

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EDUCATION

University of Copenhagen — Copenhagen, Denmark
PhD Fellow, Department of Public Health, Section of Epidemiology — *2022 –*
- **Project title:** *Beyond genetic sequences : protein structure based and multimodal approaches for phylogenetic inference*
- **Supervisor:** Samir Bhatt
- Member of the Steering Group of the Public Health and Epidemiology Graduate Programme

EPFL — Lausanne, Switzerland
MSc in Life Sciences Engineering (Distinction), Minor: Computational neurosciences — *2019 – 2022*
- **Relevant coursework:** Machine learning, Deep learning, Applied data analysis
Controlling behavior in animals and robots, In silico neuroscience
- **Master's thesis:** *Analytical approaches to data from human virtual reality (VR) and neuro-physiology studies*
- **Supervisor:** Carmen Sandi

KTH Royal Institute of Technology — Stockholm, Sweden
Swiss European Mobility Programme – 3rd year Bachelor exchange — *2018 – 2019*

EPFL — Lausanne, Switzerland
BSc in Life Sciences Engineering — *2016 – 2019*

EXPERIENCE

Logitech — Lausanne, Switzerland
Scientific advisor — *Sep. 2021 – Feb. 2023*
- Assisting interns for projects on deep-learning based speech representations

Engineering intern, CTO office — *Feb. 2021 – Aug. 2021*
- **Project:** Paralinguistic analysis of speech and non-speech audio signals
- Prepared software and submissions for INTERSPEECH and ICASSP
- Designed experiments to record speech under cognitive and physical load conditions

EPFL — Lausanne, Switzerland
Research engineer — *Feb. 2022 – Sep. 2022*
- Master enhancement internship at the Behavioral Genetics lab: extending the analysis of my Master's thesis for a publication
- Design of a GUI to facilitate post-processing of data from DeepLabCut (kinematics) and fiber photometry for behavioral tests in rodents.
- Audio feature extraction from video recordings from Trier Social Stress Test experiments

Student research assistant — *2019 – 2021*
- 2020-2021: Neuroengineering lab – Comparison of deep learning algorithms for 2D pose estimation of tethered flies
- 2019-2020: Psychophysics lab – Modelling the Sequential Metacontrast Paradigm with recurrent neural networks

Student teaching assistant — *2019 – 2022*
- 2021-2022: Information, Computation, Communication (CS-119)
- 2021-2022: Applied data analysis (CS-401)
- 2019-2021: Analysis III (MATH-203)
- 2019-2021: Projects in Informatics (for SV) (CS-116)

ETH Zürich — Zürich, Switzerland
Student research assistant — *Jun. 2019 – Jul. 2019*
- Neural Control of Movement lab – Event-Related Desynchronization (ERD) estimation algorithms for offline and online EEG data.

Technical Skills

Operating systems: Windows, Linux
Office automation: Microsoft Office, LaTeX
Programming languages: Python, C++, Matlab, basic knowledge of R, Julia, SQL, and Ruby
Machine learning frameworks: PyTorch, Tensorflow, Keras, scikit-learn, basic knowledge of Jax
Audio processing: Audacity
Image processing: ImageJ
GUI design: Tkinter

Languages

French, English: Native speaker
German: Limited working proficiency
Danish, Swedish, Mandarin Chinese: Elementary knowledge

Publications

BYOL-S: Learning Self-supervised Speech Representations by Bootstrapping,
Elbanna, G., **Scheidwasser-Clow, N.**, Kegler, M., Beckmann, P., & Cernak, M.
HEAR: Holistic Evaluation of Audio Representations (NeurIPS 2021 Competition) **PMLR**, 2022.

Hybrid Handcrafted and Learnable Audio Representation for Analysis of Speech Under Cognitive and Physical Load,
Elbanna, G., Biryukov, A., **Scheidwasser-Clow, N.**, Orlandic, L., Mainar, P., Kegler, M., Beckmann, P. & Cernak, M.
Proceedings of the 23rd Interspeech conference **Interspeech**, 2022

SERAB: A multi-lingual benchmark for speech emotion recognition,
Scheidwasser-Clow, N., Kegler, M., Beckmann, P., & Cernak, M.
International Conference on Acoustics, Speech and Signal Processing **ICASSP**, 2022.
- Code: https://github.com/Neclow/SERAB
- Featured as one of the strongest submissions of the HEAR 2021 NeurIPS challenge.

Commentary: The Risky Closed Economy: A Holistic, Longitudinal Approach to Studying Fear and Anxiety in Rodents,
Scheidwasser-Clow, N., Faggella, M., Kozlova, E., & Sandi, C.
Frontiers in Behavioral Neuroscience, 2021

Preprints & upcoming publications

Efficient Speech Quality Assessment using Self-supervised Framewise Embeddings,
Hajal, K. E., Wu, Z., **Scheidwasser-Clow, N.**, Elbanna, G., & Cernak, M.
Accepted at **ICASSP** 2023.

Phylo2Vec: a vector representation for binary trees,
Scheidwasser-Clow, N.*, Penn, M. J.*, Khurana, M. P., Duchêne, D. A., Donnelly, C. A., & Bhatt, S.
arXiv preprint arXiv:2304.12693, 2023
*Equal contribution

Presentations

Phylo2Vec: A vector representation of binary trees,
Scheidwasser-Clow, N.*, Penn, M. J.*, Khurana, M., Donnelly, C. A., & Bhatt, S.
Accepted at **2023 ICLR First Workshop on Machine Learning & Global Health**.
*Equal contribution

Other interests

Student organizations:
- Data Analytics Group (DAG) at EPFL: co-founder
  * Goal: build a strong community of students who share a passion for data science and artificial intelligence
  * 2022: Head of Communications
  * 2021: Head of Event Management
  * 2021-2022: designed 20+ coding challenges in Python (data science and basic algorithms)
- Erasmus Student Network (ESN):

* Copenhagen: commitee member (2022-2023), Head of Event Management (2023-)
* Lausanne: commitee member (2020-2022)

Scrabble: Under-18 French World Scrabble Champion (2015), in world top-100 for 5 years
Sports: Football, running, bouldering, skiing, tennis, squash, padel, hiking...
Other: Guitar, chess, cooking