

Curriculum Vitae

Ludvig Renbo Olsen (1991)

Education			
Research Stay	Genome Institute of Singapore	2023 (6 months)	A 6-month research stay at the Skanderup Lab . Work on cancer detection from cell-free DNA.
Bioinformatics, PhD Student	Dept. of Molecular Medicine, Aarhus University	2021 - (exp. 2024)	Cancer detection from blood samples via machine learning on DNA-fragment distributions (fragmentomics). Programming-based method-development.
Cognitive Science, M.Sc. with an internship at Cercare Medical A/S (20 ECTS).	Aarhus University, Aarhus	2019 - 2021	Data science and machine learning. Thesis on the use of distributed / federated deep learning on medical imaging data from the Alzheimer's Disease Neuroimaging Initiative (ADNI). Collaboration with Cercare Medical A/S. Developed the R packages <i>xpectr</i> and <i>rearr</i> .
Artificial Intelligence, M.Sc.	University of Amsterdam	2018 - 2018 Ended early.	Evolutionary Computing Multiagent Systems
Cognitive Science, B.Sc. with minor (45 ECTS) in Computer Science.	Aarhus University, Aarhus	2015 - 2018	Lots of statistics, including frequentist and Bayesian hierarchical/multilevel models , using R and python. (Convolutional) neural networks in TensorFlow as part of bachelor project. Classic machine learning as a research assistant, using scikit-learn. Course on cognitive neuroscience, including some practice with fMRI and EEG and analysis with SPM in MATLAB.

Medie- og Sonokommunikation (Media and sonic communication.)	UCSyd, Haderslev	2013 - 2014 Ended early (after 1 year).	Production of audio products, including music production and commercial audio products.
Songwriting and Electronic Music Production	Engelsholm Castle – College for Arts and Music	2012 - 2013	
Communication & English, High school - HTX (Higher Technical Exam)	Hansenberg, Kolding	2008 - 2011	Average grade: 11,5 (American system GPA ¹ : 3.93)
Work			
Machine Learning Specialist	Cercare Medical A/S, Aarhus	2020-2021 4 months: 30h/w (internship) 5 months: 15h/w	Computer vision on medical imaging data (CT and MRI). I built machine learning infrastructure for stroke lesion segmentation using PyTorch . This included building tools for assessing the validity of training data, extending the data augmentation toolkit, handling and anonymizing DICOM files, applying deep convolutional neural networks, weight pruning, w/m.
Machine Learning Researcher	UNSILO, Aarhus	2017 - 2018 ~25h/w	Natural Language Processing. I built and applied a Tensorflow codebase, including recurrent and convolutional neural networks for text summarization and classification. One of my main projects was to build a dataset and a classification model for finding definitions in scientific papers,

¹ <https://www.foreigncredits.com/Resources/GPA-Calculator/Denmark>

			<p>while generalizing the code for rapid future model development in a multi-GPU setup.</p> <p>Worked with Amazon EC2 instances.</p>
Web designer		2009 - 2016, project based	<p>Did websites for small local companies. Mainly used Wordpress, html and CSS. Did graphics in Adobe Photoshop and Adobe Illustrator.</p>
Pedagogue Helper	Designbørnehuset Sanseslottet, Kolding	2011-2012	
Substitute	Dalby Mølle, Kolding	2007-2015	Packing of oatmeal and warehouse organising.
Publications			Google Scholar
Paper: TextDescriptives: A Python package for calculating a large variety of metrics from text	Journal of Open Source Software	2023	<p>I've contributed to the TextDescriptives package and developed its web application on Huggingface Spaces.</p> <p>https://joss.theoj.org/papers/10.21105/joss.05153</p>
Paper: The electroretinogram b-wave amplitude	Journal of neurodevelopmental disorders	2022	<p>I performed a cross-validation analysis.</p> <p>https://doi.org/10.1186/s11689-022-09440-2</p>
Paper: Linking the Puzzle Pieces of the Past	Autism Research Wiley	2020	<p>I built the memory game software for this study on relational memory in children with autism.</p> <p>https://doi.org/10.1002/aur.2379</p>
Book: Practical Machine Learning with R, chapters 4 and 5	Packt Publishing	2019	<p>Applying neural networks and linear and logistic regression in R. Using balanced cross-validation for model selection.</p>

R packages			Open-source software with >400k total downloads (newest metrics).
groupdata2 R package	Aarhus University, Aarhus	2016 -	<p>groupdata2 is an R package for grouping and splitting tabular data. It has methods for dividing up the data and for creating balanced folds and partitions, e.g. for cross-validation. It is well-documented and comes with multiple tutorials.</p> <p>Released on CRAN with an MIT license: https://cran.r-project.org/package=groupdata2</p> <p>GitHub: https://github.com/LudvigOlsen/groupdata2</p>
cvms R package	Aarhus University, Aarhus	2016 -	<p>cvms (Cross-Validation for Model Selection) allows easy cross-validation and evaluation of regression and classification models.</p> <p>Released on CRAN with an MIT license: https://cran.r-project.org/package=cvms</p> <p>GitHub: https://github.com/LudvigOlsen/cvms</p>
xpectr R package	Aarhus University, Aarhus	2020-	<p>xpectr generates <i>testthat</i> unit/regression tests for R. It aims to systematize and ease the process of building tests.</p> <p>Released on CRAN with an MIT license: https://cran.r-project.org/package=xpectr</p> <p>GitHub: https://github.com/ludvigolsen/xpectr</p>
rearr R Package	Aarhus University, Aarhus	2020-	<p>rearr allows various forms of rearranging and mutation of data.</p> <p>Released on CRAN with an MIT license: https://cran.r-project.org/package=rearr</p> <p>GitHub: https://github.com/LudvigOlsen/rearr</p>

Music CV			
Når Du Går	FLÖR	2023	EP with 4 tracks. Mixing and co-production. Genre: Danish pop
Had og Hormoner	Navlebeskuer	2022	EP with 4 tracks. Genre: Danish alternative pop
Min Skyld	Navlebeskuer	2016	Single Genre: Danish alternative pop
Trip To The Sewer	Ludvig Olsen	2014	Album Genre: Soundscape
Breathing Seagull	Ludvig Olsen	2013	Album Genre: Soundscape I recorded 2 seconds of a seagull scream and stretched it to ~30 min. of soundscapes. Got a four-star review in the national music magazine Gaffa.
Concert	Jelling Musikfestival, Jelling (Music Festival)	2013	Singer-songwriter set
Concert	Faktorý, Reykjavik, Iceland	2013	Singer-songwriter set
Concert	KEX, Reykjavik, Iceland	2013	Singer-songwriter set