Aarne Talman

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Homepage: https://basement.ai
GitHub: https://github.com/aarnetalman

Born: Helsinki, Finland
Nationality: Finnish
Country of residence: Finland

Areas of specialization

natural language processing, computational linguistics, representation learning, machine learning.

Current positions

2023-present *Head of Technology, SiloGen*, Helsinki, Finland.
Working on large language models and generative AI.

2023-present *Visiting Scholar, University of Helsinki*, Helsinki, Finland.
Working on natural language understanding.

2018-2023 (expected) *Doctoral Researcher in Language Technology, University of Helsinki*, Finland.
2018-2019: full time, 2020-present: part time.
Dissertation: *Towards Natural Language Understanding: Developing and Assessing Approaches and Benchmarks*.
Advisors: Prof. Jörg Tiedemann, Prof. Stergios Chatzikyriakidis (Crete) and Dr. Anssi Yli-Jyrä.

Appointments held

2023-2023 *Lead AI Scientist, Silo AI*, Helsinki, Finland.
Working on natural language understanding.

2023-2023 *Senior Manager, Accenture*, Helsinki, Finland.
Technology strategy advisory with focus on artificial intelligence and cloud computing.

2022-2022 *Lead AI Engineer, Silo AI*, Helsinki, Finland.
Working on natural language processing, search and ASR.

2021-2022 *Senior AI Engineer, Silo AI*, London, UK and Helsinki, Finland.
Working on natural language processing and search.

2020-2021 *UK CTO & Global ML Practice Lead, Nordcloud*, UK.

Nordcloud is a leading public cloud professional and managed services company. Leading a team of architects and engineers.

2019-2020 *Founder and CEO, Basement AI*, Finland & UK.
Basement AI is a Nordic artificial intelligence research lab and consulting company specializing in natural language processing and machine learning

2016-2018 *Associate Director Consulting at Gartner*, Finland.
Nordic analytics consulting practice lead. Project manager in multiple large consulting projects across high-tech and telecoms industry clients in the EMEA region.

2015-2016 *Senior Consultant at Gartner*, Finland.
Digital and IT strategy consulting in the high-tech and telecoms industry.

2012-2015 *Consultant at Accenture*, Finland.
Technology strategy consultant and advisor working with major Finnish and international clients on their IT strategy, enterprise architecture and IT transformation challenges. Finnish lead of the Enterprise Architecture and Application Strategy community of practice in Accenture Strategy. Part of the Nordic Enterprise Architecture and Application Strategy leadership team.

2011-2012 *Research Student at London School of Economics*, UK.
Research on the reliability of non-linear mathematical models used in economics and climate science.

2009-2011 *Product Manager Search at Nokia*, Finland.
End-to-end responsibility of Nokia's enterprise search platform targeted for more than 55000 end users globally. I was responsible for stakeholder management and promotion of the use of the platform to the business and other stakeholders. The role included defining strategic roadmaps based on business and end-user needs, financial planning, vendor management, contract and license negotiations and managing and leading a team of specialists. Initiated, successfully led and managed the renewal of Nokia's intranet search.

2008-2011 *Manager Architecture and System Design at Nokia*, Finland.
Managed the design and development of the architecture management and system design tools used at Nokia R&D. Successfully managed and led the implementation and technical deployment of a new architecture management and planning solution in Nokia R&D. Responsible for the technical architecture of the solution. The role included leading a team of developers, vendor management, financial planning and defining product roadmaps.
Technologies: Java, Python.

2006-2008 *Systems Analyst at Tieto*, Finland.
Analysis, design and development of Tieto's Java EE-based life insurance solution. I was also responsible for building and technical deployment of various development and test environments used by more than 50 developers and testers.
Technologies: Java, HTML.

2006 *Software Developer at Valuatum*, Finland.
Development of Valuatum's financial analysis solution.
Technologies: Java, HTML.

Education

UNIVERSITY

2018-2023 *PhD in Language Technology, University of Helsinki*, Finland.
Dissertation: *Towards Natural Language Understanding: Developing and Assessing Approaches and Benchmarks*.

2005-2007 *MSc in Computational Linguistics and Formal Grammar, King's College London*, UK.
Graduated with Distinction.
Courses taken: Natural Language Processing, Formal Grammar, Formal Syntax, Formal Semantics, Formal Pragmatics.
Dissertation: *Path Grammars and the Generative Capacity of Dynamic Syntax*.

2002-2005 *BSc in Philosophy, London School of Economics*, UK.
Graduated with First Class Honours.
Courses mainly in Mathematical Logic, Set Theory, Philosophy of Language, Scientific Method and Philosophy of Science.
Thesis: *Gödel's Incompleteness Theorems and the Limitations of Artificial Intelligence*.

2001-2002 *Bachelor-level courses in Philosophy, Open University*, Finland

COMPULSORY MILITARY SERVICE

2000-2001 Guard Jaeger Regiment, Helsinki, Finland.

SECONDARY SCHOOL

2000 Finnish Matriculation Examination.

TRAINING AND CERTIFICATION

2021 Google Cloud Certified Professional Machine Learning Engineer.
2021 Google Cloud Certified Professional Data Engineer.
2020 Google Cloud Certified Associate Cloud Engineer.
2020 AWS Certified Solution Architect Associate.
2018 Lisbon Machine Learning School (LxMLS).
2013 TOGAF 9, Foundations Certificate.
2008 ITIL v3 Service Transition Certificate, EXIN.
2008 ITIL v3 Foundations Certificate, EXIN.
2008 Leading People, Nokia.
2008 Consulting with Confidence, Nokia.

Language skills

Finnish: native.
English: full professional proficiency.
Swedish: limited working proficiency.

Programming & computing skills

Programming languages: Python, Bash, Java, HTML.
Machine learning libraries: PyTorch, Tensorflow, Keras.
Language processing libraries: transformers, NLTK, SpaCy.
Computing environments: Linux, Unix, Microsoft Windows.
Public cloud platforms: Amazon Web Services, Google Cloud.
Enterprise software: Microsoft Office (Excel, PowerPoint, Word), Google Workspace.

Projects

2018-2023 *Found in Translation (FoTran)*: Natural Language Understanding with Cross-lingual Grounding is an ERC funded project running from 2018 to 2023 within the language technology research group at the University of Helsinki. The project is led by Professor Jörg Tiedemann. The goal of the project is to develop models for natural language understanding trained on implicit information given by large collections of human translations.

2018-2020 *MeMad* is an EU funded H2020 research project. MeMAD will develop methods for an efficient re-use and re-purpose of multilingual audiovisual content targeting to revolutionize video management and digital storytelling in broadcasting and media production. My work in the project focuses on multimodal machine translation – especially on building speech-to-text translation models.

Grants, honors & awards

2019 Lisbon Machine Learning School (LxMLS 2019), Portugal.
Travel grant.

2011 Alfred Kordelin Foundation, Finland.
One-year research grant for research on foundations of chaotic models at the London School of Economics.

2005 Arts and Humanities Research Council, UK.
Research Preparation Masters Scheme. One-year full studentship and maintenance grant for MSc studies.

Publications & talks

PEER-REVIEWED PUBLICATIONS

2023 **Aarne Talman**, Hande Celikkanat, Sami Virpioja, Markus Heinonen, Jörg Tiedemann. 2023. Uncertainty-Aware Natural Language Inference with Stochastic Weight Averaging. *Proceedings of the 24th Nordic Conference on Computational Linguistics (NoDaLiDa)*.

2022 **Aarne Talman**, Marianna Apidianaki, Stergios Chatzikyriakidis, Jörg Tiedemann. 2022. How Does Data Corruption Affect Natural Language Understanding Models? A Study on GLUE datasets. *Proceedings of The 11th Joint Conference on Lexical and Computational Semantics (*SEM)*.

2021 **Aarne Talman**, Marianna Apidianaki, Stergios Chatzikyriakidis, Jörg Tiedemann. 2019.

NLI Data Sanity Check: Assessing the Effect of Data Corruption on Model Performance. *Proceedings of the 23rd Nordic Conference on Computational Linguistics (NoDaLiDa)*.

2019 **Aarne Talman**, Antti Suni, Hande Celikkanat, Sofoklis Kakouros, Jörg Tiedemann and Martti Vainio. 2019. Predicting Prosodic Prominence from Text with Pre-trained Contextualized Word Representations. *Proceedings of the 22nd Nordic Conference on Computational Linguistics (NoDaLiDa)*.

2019 **Aarne Talman**, Umut Sulubacak, Raúl Vázquez, Yves Scherrer, Sami Virpioja, Alessandro Raganato, Arvi Hurskainen, and Jörg Tiedemann. 2019. The University of Helsinki submissions to the WMT19 news translation task. *Proceedings of the Fourth Conference on Machine Translation: Shared Task Papers*.

2019 **Aarne Talman** and Stergios Chatzikyriakidis. 2019. Testing the Generalization Power of Neural Network Models Across NLI Benchmarks. *Proceedings of the 2019 ACL Workshop BlackboxNLP: Analyzing and Interpreting Neural Networks for NLP*.

2019 **Aarne Talman**, Anssi Yli-Jyrä and Jörg Tiedemann. 2019. Sentence Embeddings in NLI with Iterative Refinement Encoders. *Natural Language Engineering* 25(4).

TALKS

2022 How Does Data Corruption Affect Natural Language Understanding Models? A Study on GLUE datasets. The 11th Joint Conference on Lexical and Computational Semantics (*SEM) 2022, Seattle, Washington, USA.

2021 NLI Data Sanity Check: Assessing the Effect of Data Corruption on Model Performance, NoDaLiDa 2021, Reykjavik, Iceland.

2019 Predicting Prosodic Prominence from Text with Pre-trained Contextualized Word Representations, Research Seminar in Language Technology, University of Helsinki, Finland.

2019 Predicting Prosodic Prominence from Text with Pre-trained Contextualized Word Representations, NoDaLiDa 2019, Turku, Finland.

2019 Neural Network models of NLI fail to capture the general notion of inference, CLASP Seminar, University of Gothenburg, Sweden.

2018 Unlock the Value of Your Data Assets, Gartner Symposium, Barcelona, Spain.

2018 State-of-the-Art Natural Language Inference Systems Fail to Capture the Semantics of Inference, Research Seminar in Language Technology, University of Helsinki, Finland.

2018 Business Value of AI, AI Monday, Helsinki, Finland.

2018 Natural Language Inference with Hierarchical BiLSTM's, FoTran 2018. University of Helsinki, Finland.

2017 Natural Language Inference - Another Triumph for Deep Learning?, Research Seminar in Language Technology, University of Helsinki, Finland.

Teaching

THESIS SUPERVISION

2019-2020 Evaluation of Multilingual Sentence Representations, Master's thesis.

INSTRUCTOR

2020 Natural Language Understanding and Representation Learning (LDA-T3115). University of Helsinki, Finland.
MSc-level course.
Co-instructor with: Dr. Alessandro Raganato.

TEACHING ASSISTANT

2019 Machine Learning for Linguists (KIK-LG210). University of Helsinki, Finland.
BSc-level course.
Instructor: Dr. Mathias Creutz.

2019 A Practical Introduction to Modern Neural Machine Translation (LDA-T3115). University of Helsinki, Finland.
MSc-level course.
Instructor: Prof. Jörg Tiedemann, Dr. Yves Scherrer and Dr. Alessandro Raganato.

SUMMER SCHOOLS

2019 Lab Monitor, Lisbon Machine Learning School (LxMLS 2019).

Service to the profession

PROGRAM COMMITTEES

2022 NeurIPS, Thirty-sixth Conference on Neural Information Processing Systems.
2022 EMNLP, The 2022 Conference on Empirical Methods in Natural Language Processing.
2021 BlackboxNLP, Analyzing and interpreting neural networks for NLP.
2021 NeurIPS, Thirty-fifth Conference on Neural Information Processing Systems.
2021 EMNLP, The 2021 Conference on Empirical Methods in Natural Language Processing.
2021 *SEM, The Tenth Joint Conference on Lexical and Computational Semantics.
2021 ACL-IJCNLP, The Joint Conference of the 59th Annual Meeting of the Association for Computational Linguistics and the 11th International Joint Conference on Natural Language Processing (ACL-IJCNLP 2021).
2020 *SEM, The Ninth Joint Conference on Lexical and Computational Semantics.
2020 IJCAI, The 29th International Joint Conference on Artificial Intelligence.
2019 ECAI, The 24th European Conference on Artificial Intelligence.
2019 NoDaLiDa, The 22nd Nordic Conference on Computational Linguistics.
2019 DL4NLP, The First NLPL Workshop on Deep Learning for Natural Language Processing. Co-located with NoDaLiDa.
2019 *SEM, The Eighth Joint Conference on Lexical and Computational Semantics. Co-located with NAACL.
2019 RANLP-Stud 2019, RANLP 2019 Student Workshop.

Resources

OPEN-SOURCE SOFTWARE

2023 *Uncertainty-Aware NLI with SWAG*: Code for our 2023 NoDaLiDa paper.
https://github.com/Helsinki-NLP/uncertainty-aware-nli

2022 *NLU Dataset Diagnostics*: Scripts for our 2022 *SEM paper.
https://github.com/Helsinki-NLP/nlu-dataset-diagnostics

2021 *NLI Data Sanity Check*: Scripts for our 2021 NoDaLiDa paper.
https://github.com/Helsinki-NLP/nli-data-sanity-check

2020 *NLP Notebooks*: Jupyter notebooks exploring different NLP/ML use cases and tasks.
https://github.com/aarnetalman/Notebooks

2019 *Prosody*: A system written in Python and PyTorch for predicting prosodic prominence from written text. License: MIT.
https://github.com/Helsinki-NLP/prosody

2018 *HBMP*: A natural language inference system written in Python and PyTorch implementing the HBMP sentence encoder along with the BiLSTM-max/InferSent and LSTM encoders. License: MIT.
https://github.com/Helsinki-NLP/HBMP

DATA

2021 *NLI Data Sanity Check*: Corrupted datasets for our 2021 NoDaLiDa paper.
https://github.com/Helsinki-NLP/nli-data-sanity-check

2019 *Helsinki Prosody Corpus*: The Helsinki prosody corpus contains automatically generated, high quality prosodic annotations for the LibriTTS corpus using the Continuous Wavelet Transform Annotation method. License CC BY 4.0.
https://github.com/Helsinki-NLP/prosody