Seppo Enarvi

CONTACT INFORMATION

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GENERAL INTERESTS

All aspects of machine learning, especially deep learning. I have most experience in sequence modeling, but I'm also very excited about computer vision and artificial intelligence in general. I have a strong background in software engineering and I like coding and algorithms. I want to to learn constantly and stay on top of this quickly changing field.

EDUCATION

Aalto University School of Electrical Engineering,
Department of Signal Processing and Acoustics,
Espoo, Finland

Doctor of Science (Technology) September 2012 to May 2018

- Research Field: *Speech and Language Technology*
- Thesis: *Modeling Conversational Finnish for Automatic Speech Recognition*

Aalto University School of Science,
Department of Information and Computer Science,
Espoo, Finland

Licentiate of Science (Technology) September 2007 to September 2012

- Research Field: *Computer and Information Science*
- Thesis: *Finnish Language Speech Recognition for Dental Health Care*

Helsinki University of Technology,
Department of Computer Science and Engineering,
Espoo, Finland

Master of Science (Technology) September 1999 to August 2006

- Major: *Interactive Digital Media*
- Minor: *Telecommunications Software*
- Extended curriculum in mathematics and physics
- Thesis: *Image-based Detection of Defective Logs*

RESEARCH AND TRAINING

International Computer Science Institute,
Berkeley, USA

Visiting Researcher February 2012 to August 2012

- Worked on speech recognition for conversational speech.

Asian Institute of Technology School of Engineering and Technology,
Information and Communications Group,
Pathumthani, Thailand

Exchange Student August 2005 to December 2005

The Finnish Defence Forces,
Guard Jaeger Regiment

Military Service January 2000 to December 2000

- Rank: *Corporal*

Work History

Nuance Communications,
Aachen, Germany

Senior Research Scientist — December 2017 to present
NLP/Machine and Deep Learning

- Abstractive conversation summarization using sequence-to-sequence models.

Aalto University,
Espoo, Finland

Doctoral Candidate — January 2011 to November 2017

- Worked on subword, class, and neural network language models.
- Developed AaltoASR decoder and server backend (C++).
- Developed TheanoLM language modeling toolkit (Python).
- Collected a conversational Finnish text corpus from the Internet using data selection algorithms.
- Supervised collection of an acoustic training corpus (DSPCON).

Genera Oy, Helsinki, Finland

Software Designer — May 2001 to January 2012

- Implemented new graphical features to display panel software (C++).
- Designed and developed a distributed system for updating content to KONE InfoScreen elevator displays (C++, PHP, JavaScript).
- Developed image analysis algorithms and designed computer vision systems for timber grading and internal quality control (C++).
- Developed Mitla software for timber measurement and refining (Visual Basic).
- Developed configuration script parsers for control and diagnostics panels (Perl).

JOKO Executive Education Oy, Helsinki, Finland

Computer Assistant — April 1999 to May 1999, June 1998 to July 1998

- Performed local area network administration.
- Produced graphic content for course material.
- Provided assistance with office software, desktop computers, and A/V equipment.

City of Helsinki Education Department, Helsinki, Finland

IT Project Tutor — January 1998 to May 1998

- Teached common desktop software to school teachers.
- Scanned photographs for Picture Archives of Helsinki City Museum.

Publications

Seppo Enarvi, Marilisa Amoia, Miguel Del-Agua Teba, Brian Delaney, Frank Diehl, Guido Gallopyn, Stefan Hahn, Kristina Harris, Liam McGrath, Yue Pan, Joel Pinto, Luca Rubini, Miguel Ruiz, Gagandeep Singh, Fabian Stemmer, Weiyi Sun, Paul Vozila, Thomas Lin, and Ranjani Ramamurthy (2020)
Generating Medical Reports from Patient-Doctor Conversations using Sequence-to-Sequence Models
In Proceedings of the First Workshop on Natural Language Processing for Medical Conversations

Peter Smit, Siva Reddy Gangireddy, Seppo Enarvi, Sami Virpioja, Mikko Kurimo (2017)
Character-Based Units for Unlimited Vocabulary Continuous Speech Recognition
In Proceedings of the 2017 IEEE Automatic Speech Recognition and Understanding Workshop (ASRU)

Peter Smit, Siva Reddy Gangireddy, Seppo Enarvi, Sami Virpioja, Mikko Kurimo (2017)
Aalto System for the 2017 Arabic Multi-Genre Broadcast Challenge
In Proceedings of the 2017 IEEE Automatic Speech Recognition and Understanding Workshop (ASRU)

Seppo Enarvi, Peter Smit, Sami Virpioja, Mikko Kurimo (2017)
Automatic Speech Recognition with Very Large Conversational Finnish and Estonian Vocabularies
IEEE/ACM Transactions on Audio, Speech, and Language Processing

Mikko Kurimo, Seppo Enarvi, Ottokar Tilk, Matti Varjokallio, André Mansikkaniemi, and Tanel Alumäe (2017)
Modeling under-resourced languages for speech recognition
Language Resources and Evaluation (LRE)

Seppo Enarvi, Mikko Kurimo (2016)
TheanoLM – An Extensible Toolkit for Neural Network Language Modeling
In Proceedings of the 17th Annual Conference of the International Speech Communication Association (INTERSPEECH)

Seppo Enarvi and Mikko Kurimo (2013)
Studies on Training Text Selection for Conversational Finnish Language Modeling
In Proceedings of the 10th International Workshop on Spoken Language Translation (IWSLT 2013)

Seppo Enarvi and Mikko Kurimo (2013)
A Novel Discriminative Method for Pruning Pronunciation Dictionary Entries
In Proceedings of the 7th International Conference on Speech Technology and Human-Computer Dialogue (SpeD 2013)

Programming Expertise

I am especially confident in Python and C++. I've used PyTorch, TensorFlow, Theano, and NumPy libraries extensively for modeling with neural networks. I have a long history of programming with C++ using the Standard Template Library and Boost C++ Libraries. Other programming languages I have used in the past include Java, PHP, Perl, and assembly languages. I have experience in concurrent programming and network programming, and I am keen to write aesthetic, maintainable code.

Spoken Languages

Finnish (native), English (excellent written and spoken), German (fluent written and fair spoken), Swedish (fair)

Open-Source Contributions

TheanoLM
Author of the open source toolkit for language modeling using neural networks.

AaltoASR
Contributed to Aalto University speech recognizer.

Tensor2Tensor
Contributed to the library of deep learning models from the Google Brain team.

Last Updated

July 25th, 2020