

# Adaptation of the Event-Related Potential Technique for Analyzing Artificial Neural Nets

**Submission ID** 3000109

**Submission Type** Poster

**Topic** Artificial Intelligence

**Status** Submitted

**Submitter** Andreas Krug

**Affiliation** University of Potsdam, Research Focus Cognitive Sciences

## SUBMISSION DETAILS

**Presentation Type** Either Poster or Oral Presentation

**Presentation Abstract Summary** The increase in complexity of Artificial Neural Nets (ANNs) results in difficulties in understanding what they have learned and how they accomplish their goal. As their complexity becomes closer to the one of the human brain, neuroscientific techniques could facilitate their analysis. This paper investigates an adaptation of the Event-Related Potential (ERP) technique for analyzing ANNs demonstrated for a speech recognizer. Our adaptation involves deriving a large number of recordings (trials) for the same word and averaging the resulting neuron activations. This allows for a systematic analysis of neuron activation to reveal their function in detecting specific letters. We compare those observations between an English and German speech recognizer.

## Co-author Information

\* Presenting Author

First Name	Last Name	Affiliation	E-mail
Andreas *	Krug *	University of Potsdam, Research Focus Cognitive Sciences	ankrug@uni-potsdam.de
Sebastian	Stober	University of Potsdam, Research Focus Cognitive Sciences	sstober@uni-potsdam.de

## Keywords

Keywords
Event-Related Potential
Artificial Neural Nets

Introspection
Speech Recognition
Convolutional Neural Nets