

## **Seminar Talk**

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**Friday, December 07, 2018  
3:00 p.m. KH 224**

**Title:** Cyclostationary-Based Detection of Steady Visually Evoked Potential Signals Recorded From EEG

**Abstract:**

Steady-state visual evoked potentials (SSVEP) are a class of signals obtained from the electroencephalogram (EEG) that are used in conjunction with brain-computer interfaces (BCIs). Inducing SSVEP signals requires flickering lights as stimuli, typically in the range of 5-45 Hz. However, due to low signal-to-noise ratio (SNR), SSVEP signals generated in certain frequency ranges can be difficult to detect. Cyclostationary-based detection is a popular method for communication signal detection and classification in low SNR environments but its application in the context of BCI systems has received only limited attention in the BCI research community. The results presented demonstrate that cyclostationary-based detection of SSVEP using spectral correlation density (SCD) performs as well as canonical correlation analysis (CCA), which is the most widely used method of SSVEP classification.

**Bio:**

Sara MacDonald is currently a PhD candidate in Electrical and Computer Engineering at Old Dominion University. She has 18 years of experience designing terrestrial, airborne, and satellite wireless communication systems for military use. She received a Bachelor's degree in Electrical Engineering from South Dakota School of Mines and Technology in 2000 and her Master's degree in Electrical and Computer Engineering from Old Dominion University in 2013.