# Seminar 2: Literature Peer Review

## Paper One: Continual Learning through Synaptic intelligence

Zenke, F., Poole, B. & Ganguli, S. (2017). Continual learning through synaptic intelligence. In *International Conference on Machine Learning:*3987-3995.

**Purpose.** The purpose of this paper is to introduce the notion of intelligent synapses into artificial neural networks (ANN), enabling them to behave much like biological neural networks.

**Problem.** The authors highlight that current ANNs with "scalar one-dimensional synapses suffer from catastrophic forgetting, in which the network forgets previously learned tasks when trained on a novel task".

**Objective.** To develop a framework that enables ANNs to learn sequences of classification tasks.

**Research Question.** Not explicitly stated in the paper, however, I believe the question could be "Can ANNs be developed to follow a continual learning process that mimics biological processes?"

**Research Methodology Used.** Quantitative because they investigate the impact of variable changes and their impact on ANNs learning capacity.

**Data Collection and Analysis.** The authors worked with several organisations (BP, Swiss National Science Foundation, Burroughs Wellcome Trust, and Office of Naval Research)

**How to enhance the paper?** I believe the paper set out to achieve their investigation/research question and no further additions are required.

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## Paper Two: Users' perception of the effects of viruses on computer systems– Empirical research

Oyelere, S.S. & Oyelere, L.S. (2015). Users' perception of the effects of viruses on computer systems–Empirical research. *African journal of computing & ICT*, *8*(1):121-130.

**Purpose.** To spread knowledge to users about the nature of software-based viruses, their manner of operation and user prevention.

**Problem.** Computer viruses are still immature in developing African countries even though some measures have been taken to control viruses via anti-viruses.

**Objective.** Demonstrate the effects (and spread awareness) of computer viruses, and aid users in preventing and controlling the effects of computer viruses.

**Research Question.** To what extent do average university students and staff understand the nature of computer viruses and their impact on hardware, software, and daily operations.

**Research Methodology Used.** Qualitative because the researcher(s) used questionnaires and statistical analysis.

**Data Collection and Analysis.** Information was gathered from fifty-five randomly selected, computer literate participants. Data was based on primary source data and questionnaire data.

**How to enhance the paper?** The paper can be further enhanced by

- considering the cost impact of viruses on university infrastructure
- the impact of possible intellectual property theft through viruses
- how to better support against virus attacks with people-based knowledge and software-based tools (not merely standalone antivirus software)