



# DSSI and CyberSecurity

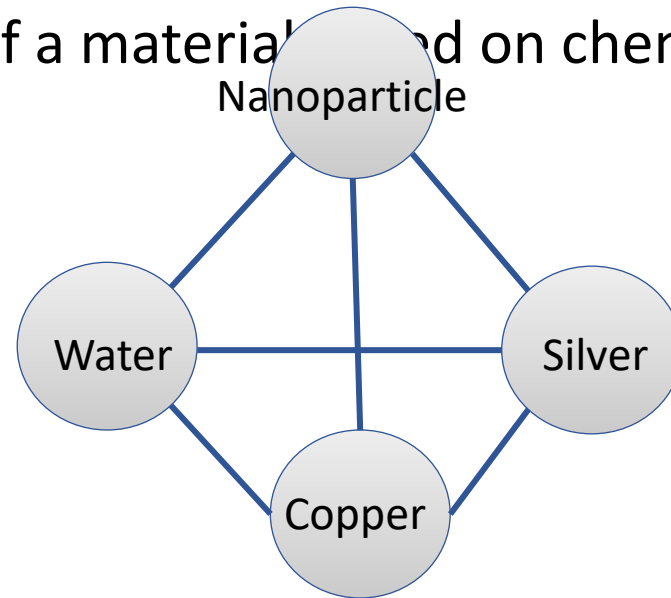
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# Nanomaterial Synthesis

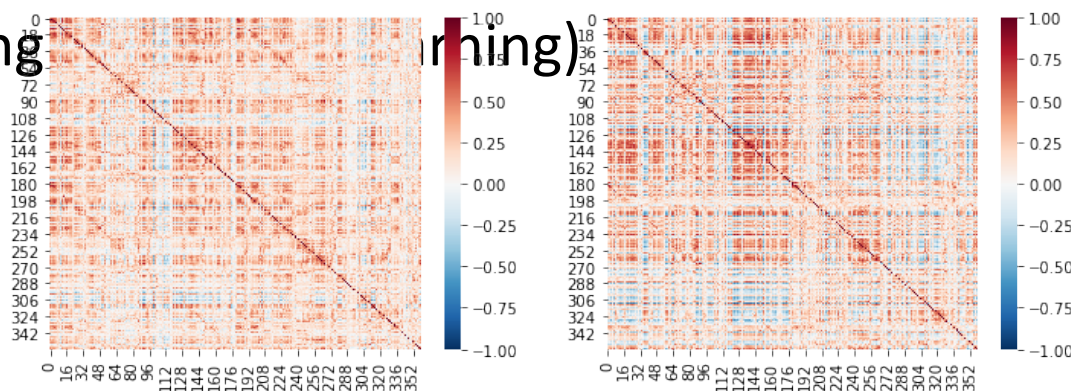
- Motivation
  - Materials discovery requires significant time. Maybe AI can help?
- Problem
  - Classify morphologies and compositions of a material based on chemicals used.
- Approach
  - Graphical Embeddings (Node2Vec)
  - Sentence Classification (FastText)





# Brain Recognition

- Motivation
  - Are we able to use data from the brain like a fingerprint?
  - Possible applications to brain degenerative disorders.
- Problem
  - Given two fMRI sequences, did they come from the same person?
- Approach
  - Deep Learning





# Network Cyber Attack Classification

- Motivation
  - There are a variety of cyber attacks that can be done via network communication. (DNS Tunneling)
- Problem
  - Classify network traffic on whether a cyber attack has occurred.
- Approach
  - DNS Tunnel into my own laptop. (Iodine)
  - Collect the network data.
  - Random Forest Classifier



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