Lucas Wilson

1. Chaos
   1. LCE to measure chaos <http://mathworld.wolfram.com/LyapunovCharacteristicExponent.html>
2. Systems
   1. 3-body problem
      1. History and relation to chaos
      2. Definition
      3. ODE System (with math)
   2. Lorenz Butterfly
      1. History
      2. Chaotic Parameters
      3. ODE System
   3. Double Pendulum
      1. History
      2. ODE System (with math)
3. TS Analysis Tools
   1. ARIMA
      1. Explanation
      2. Training
      3. Results
   2. Recurrent Neural Networks
      1. Explanation
      2. Training
      3. Results
   3. Echo State Networks
      1. Explanation
      2. Training
      3. Parameters
      4. Results
   4. LTSM
      1. Explanation
      2. Training Parameters
      3. Results
4. Conclusion
   1. Which model was best
   2. Which model was bad
   3. Difference between systems