High Integrity Systems Project
TSA Tasks 06

Prof. Dr. Matthias F. Wagner
Dr. Fatima Sajid Butt

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Deep Leraning Time Series Analysis:

1. Please investigate the *CNN - LSTM* models further:

   - Please explain the role of the *CNN* in detail.
   - Please search for different combinations of *CNNs* and *LSTMs* and explain the differences.
   - Please look for classification and forecasting solutions.
   - Please search for code of these combinations and run it.

2. Please summarize chapter 14 of the book *Modern time series forecasting with Python*! *Transformers* are the current stars. Please explain in detail:

   - the *Attention* idea,
   - the *Generalized Attention model* structure,
   - forecasting with *sequence-to-sequence models and attention*,
   - the *Transformer* models, based on the original paper, and
   - forecasting with *Transformer models*!

3. Please run the corresponding code of chapter 14, comment the code and explain it! Please explain also errors and how you solved them!

4. Please explore the Matlab Deep Learning capabilities.

5. As discussed, the group has to provide updated versions of your HIS project document!

6.