

Practical Course AI

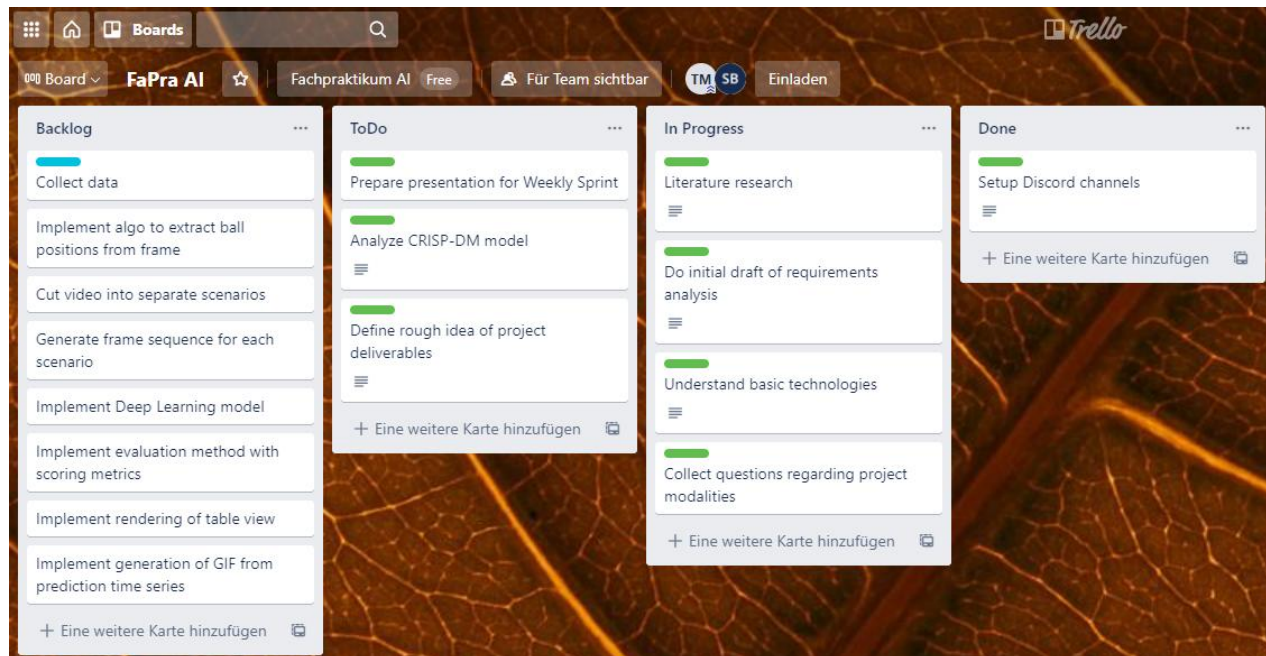
Status Sprint 1

2020/11/09 - Team 2

Thomas Monninger, Stefan Bolz,
Zuohao Chen

Configuration of Trello Board (TM)

- Trello board created and team onboarding
- Columns: Backlog – ToDo – In Progress – Done
- Colored Labels to indicate sprint assignment



Setup Discord Channels (SB)

The screenshot displays the Discord interface for the server 'Fachpraktikum AI Team 2'. The left sidebar shows a list of channels: 'just-chatting', 'dates-deadlines-etc', 'literature' (selected), and 'submissions'. The main area shows the '# literature' channel with a message from 'Zuohao Chen' dated '05.11.2020'. The message contains a list of research papers, each with a download icon. The right sidebar shows a list of online members: 'Thomas Monninger' and 'Zuohao Chen', and one offline member: 'Stefan Bolz'.

Server: Fachpraktikum AI Team 2

Channel: # literature

Message from Zuohao Chen (05.11.2020):

- 3D_Convolutional_Neural_Networks_for_Human_Action_Rec... (2.01 MB)
- Convolutional_LSTM_Network_A_Machine_Learning_Approa... (553.50 KB)
- CosmoFlow_Using_Deep_Learning_to_Learn_the_Universe_at... (766.89 KB)
- Cosmological_constraints_with_deep_learning_from_KIDS-45... (2.12 MB)
- Learning_Traffic_as_Images_A_Deep_Convolutional_Neural_... (2.58 MB)
- Revisiting_Spatial-Temporal_Similarity_A_Deep_Learning_Fra... (558.09 KB)

there are also 2 paper counted as "not directly relevant to lab"

- One_Thousand_and_One_Hour_Self-driving_Motion_Predictio... (4.16 MB)
- Encoding_Crowd_Interaction_with_Deep_Neural_Network_for... (4.78 MB)

Online Members (2):

- Thomas Monninger
- Zuohao Chen

Offline Members (1):

- Stefan Bolz

Research & Questions (ZC)

- Understand basic technologies (DL, CNN, RNN)
- Review provided literature
- Collect questions regarding project modalities

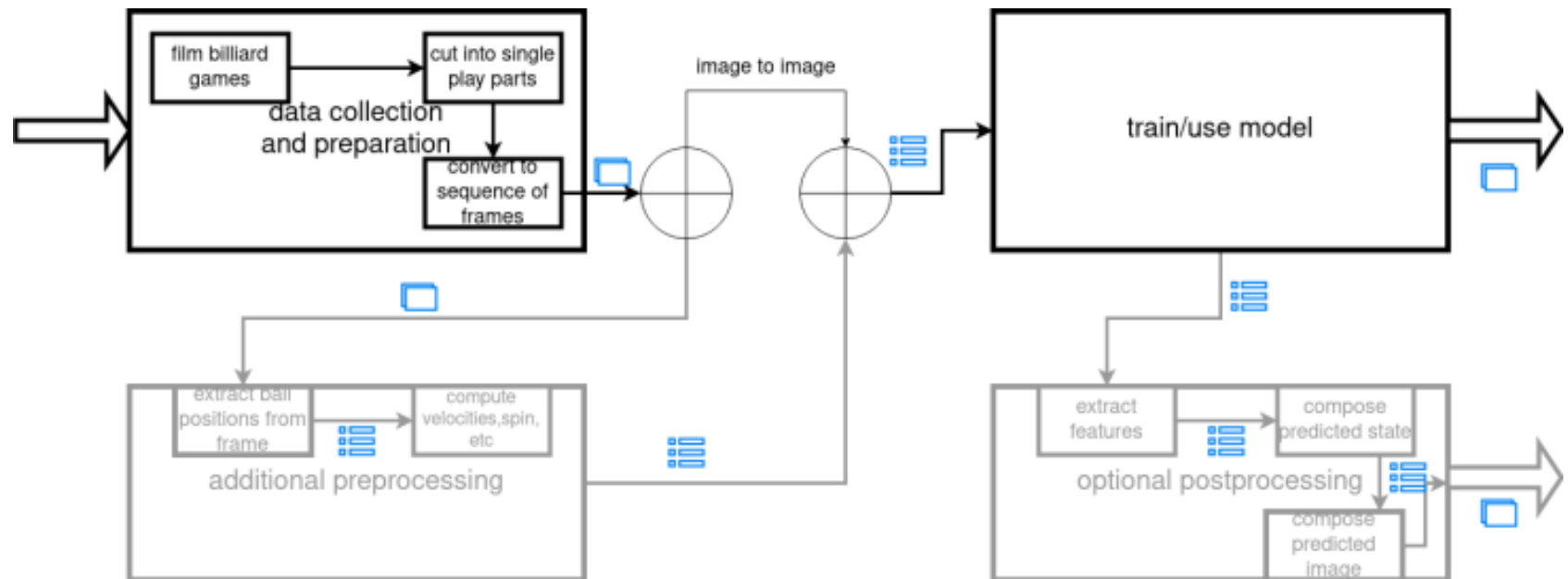
Input/Output

- Input 1: Position for 16 balls [6x16] (zeros for balls in pockets)
- Input 2: Stick position [6x1]
- Input 3: Stick angle [1x1]
- Output 1: Position difference x,y for 16 balls [2x16] (position invariance)
- What kind of input(after preprocessing) do we need to use? Position of balls in x-axis/y-axis/time or just frames of the video?
- As for output: final state picture of the table or every single position of balls?

Model Architecture

- A baseline model shall be implemented (SVM, Random Forrest)
- A deep learning model shall be implemented (Transformer, Conv-LSTM)
- A recurrent neural network shall be implemented to process the time series
- As recurrent cell, an LSMT layer shall be used with 64 hidden units
- Do we need to embed the model into some physical theorem?

Sketch Process and Data Flow (SB)



Initial Draft of Requirements Analysis (TM)

Practical Course “Artificial Intelligence” Requirements Analysis

Team 2: Thomas Monninger, Stefan Bolz, Zuohao Chen

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Grid Generation	3
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