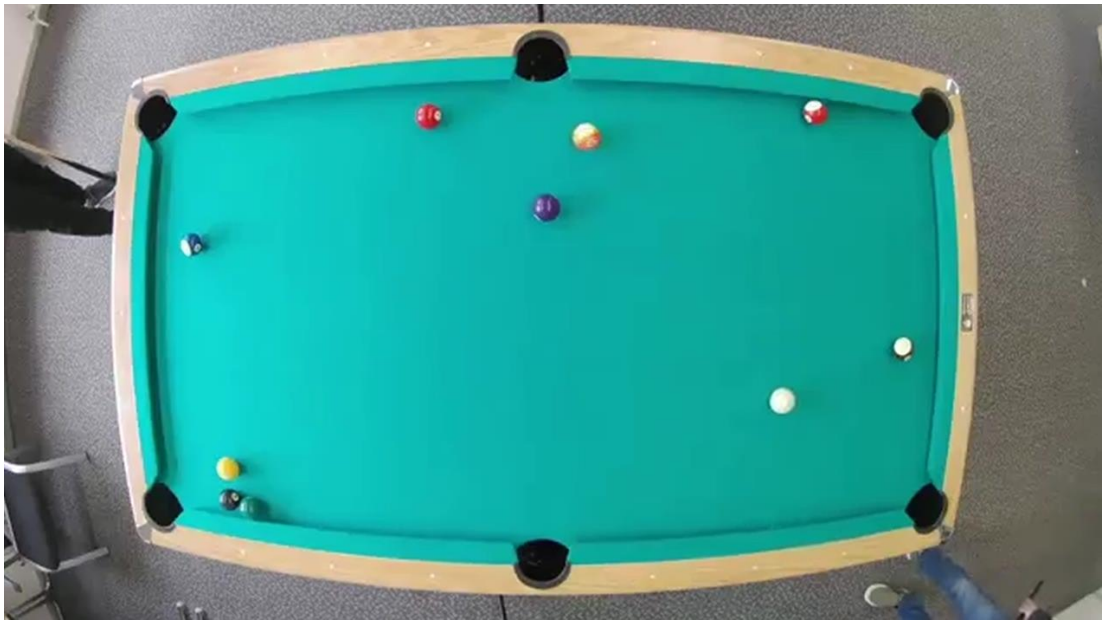
Practical Course AI
Status Sprint 14

2021/02/22

Thomas Monninger, Stefan Bolz, Zuohao Chen,
Samhita Ganguly, Ashish Nagi

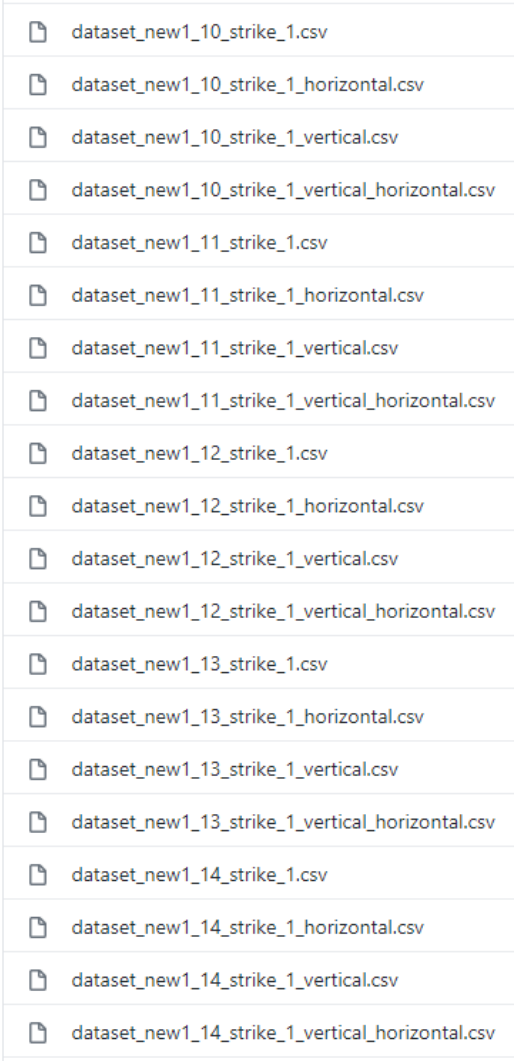
Data Collection (AN, ZC)

- Played billiard ball and record original video
- Collected data of 12 full games
  (around more than 500 strikes)



Dataset Generation (AN, ZC, SG)

- Per person:
  4 games/>200 strikes
- Recorded timestamps of individual strikes
- Generated clips
- Updated YAML file for strikes



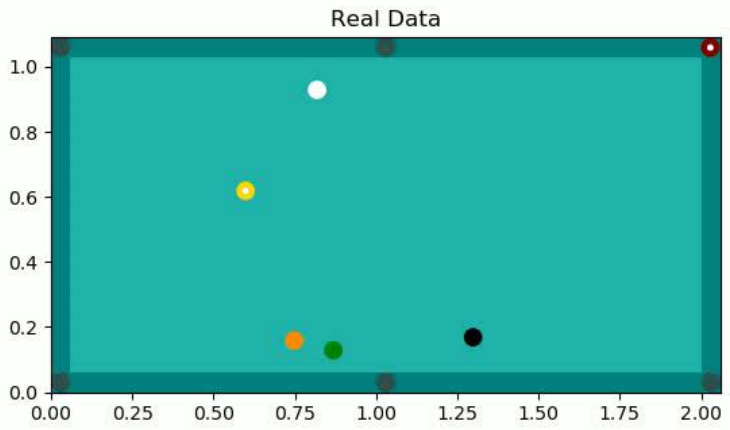
Preprocessing (AN)

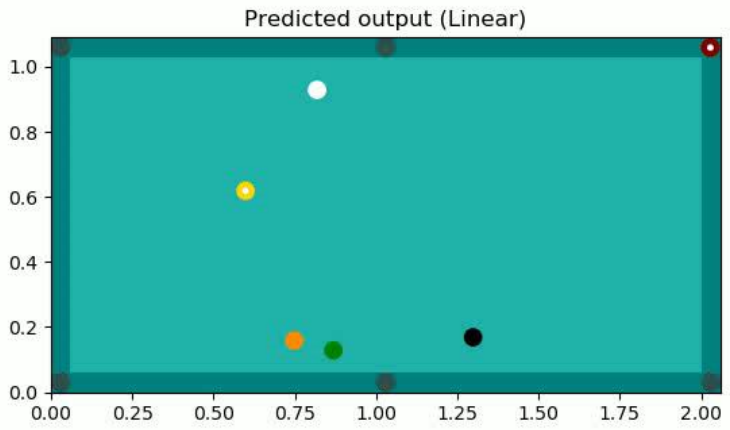
- Adjusted gamma correction according to new lightening conditions
- Added logic to generate dataset from 60 fps videos consistent with dataset generated from 30 fps videos
- Generated dataset corresponding to new entries in yaml, i.e., 1104 new csv files including augmented ones

Training (SB)

- Again changed clip prediction to easily see 1-step, 2-step, 3-step performance etc.
- Multistep training - using multistep during training to get more meaningful gradients
- → not so successful, probably because single vs multistep during training wasn't the main issue (data)

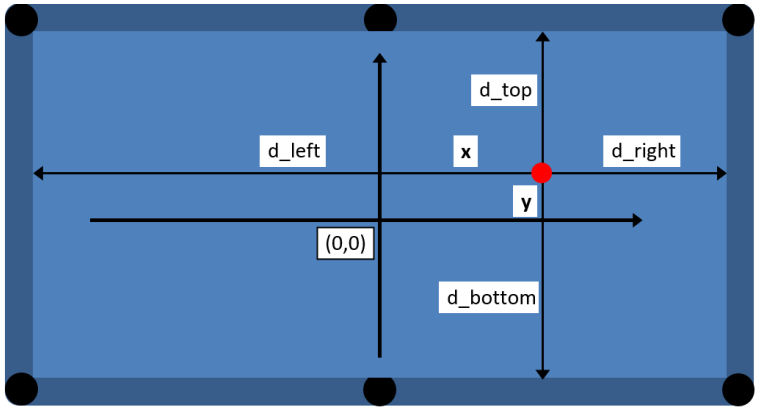
Performance of 3-step prediction





Model & Requirements (TM)

- Reduce parameters of LSTM model
- Re-work Requiremens document
  - Details on data collection process
  - Add chosen model architectures
  - Include details on internal representation
  - Section on avoiding data bottleneck
  - Add figures



Outlook

- Finish processing of new data
- Train implemented architectures on new data
  - Use implemented multi-step prediction loss
  - Tune hyperparameters
  - Evaluate and compare model architectures
- Add on_table as second output to model, extend loss function