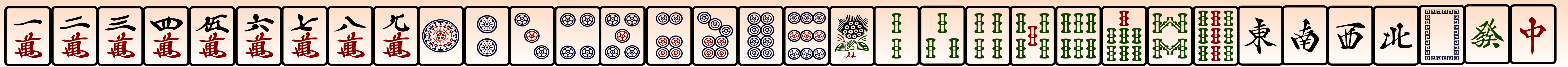


# 先端人工知能論II — Mahjong 放銃牌 Prediction

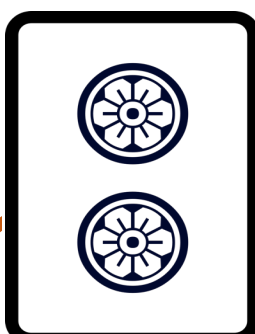
Zhou Shuyi 37-237359



## Introduction

- 放銃牌: the tiles other players need to win
- 立直: a player announce 聴牌 and wait for the tiles

- Predicting 立直聴牌 after 1<sup>st</sup>立直 player's 立直
- Predicting 放銃牌 of all the other 3 players at any time

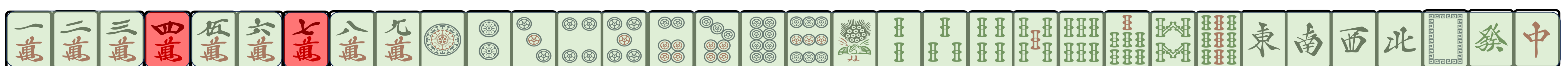


## Methodology

- Input Encoding:** following [1], concatenation of one-hot encodings of

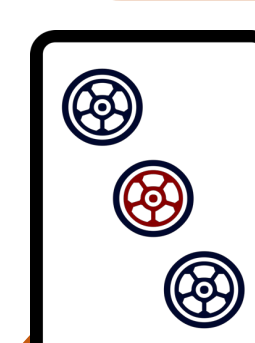
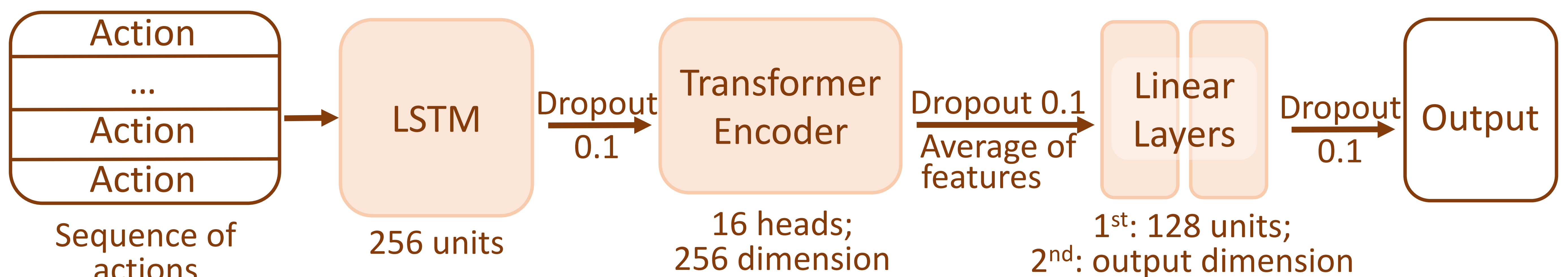
Player Number	Action	Target tile of the action	場風 indicator	自風 indicator	ドラ indicator
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- Output Encoding:** multi-hot encoding of the 34 tiles



For 放銃牌 prediction task, add a 35<sup>th</sup> class indicating there is no 放銃牌

- Network Structure:**



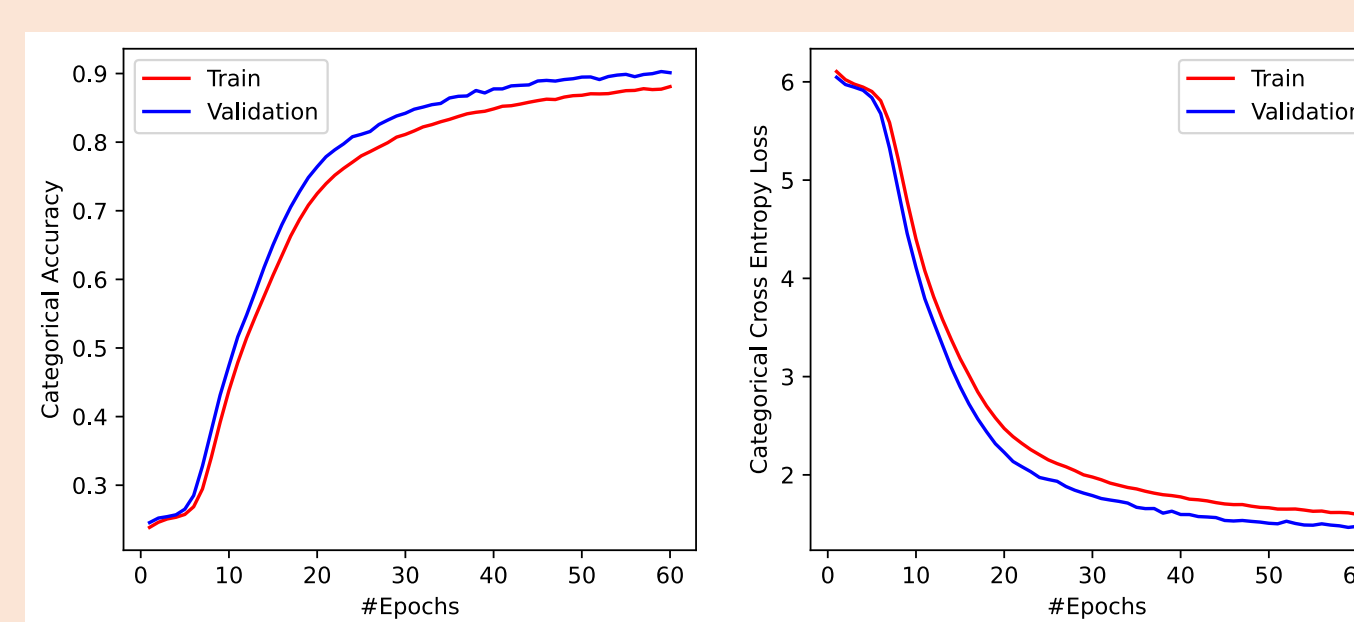
## Experiment

### Data

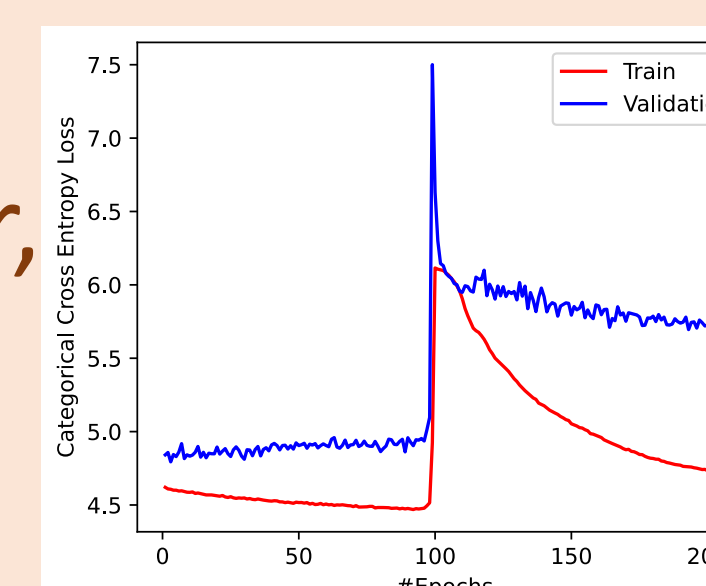
- Main Data from [1]
- Refinement by my and friends' MahjongSoul Haifu
- Data Augmentation:
  - swap 1-9 to 9-1
  - swap 發 中
  - swap man, sou, pin

### 立直聴牌 Prediction

Initial train

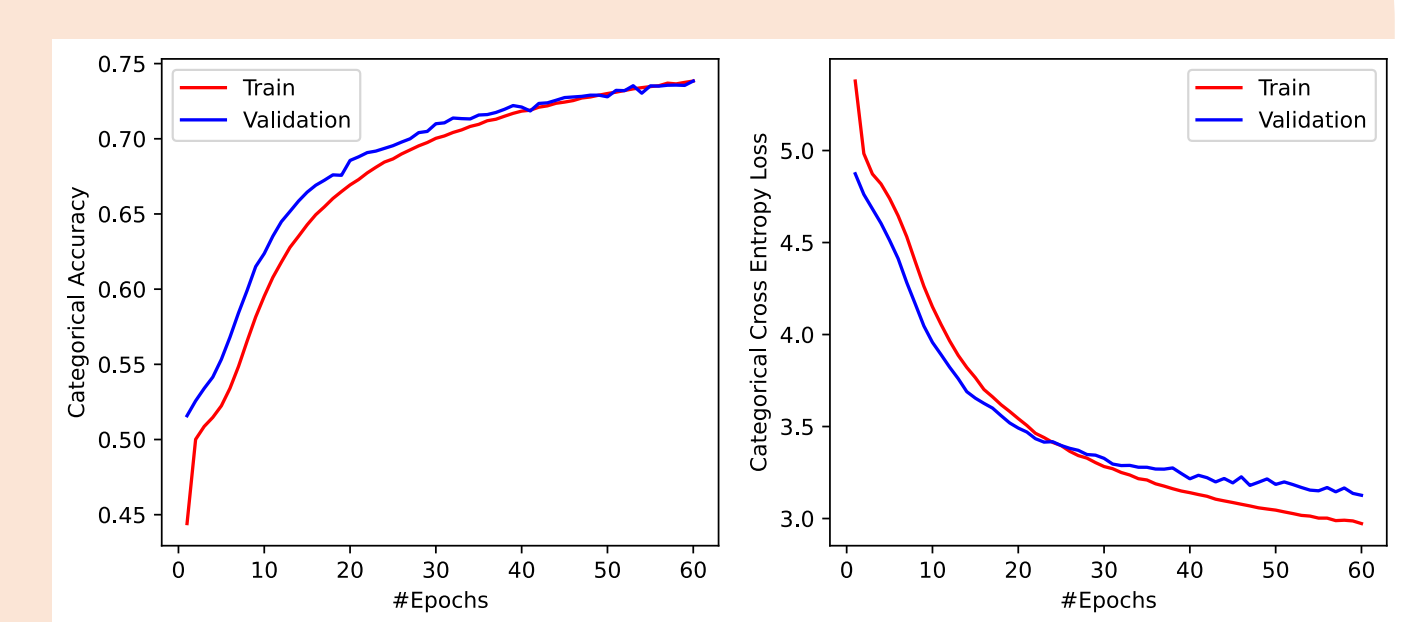


Instead of using LSTM+1-layer encoder, use 4-layer encoder without LSTM

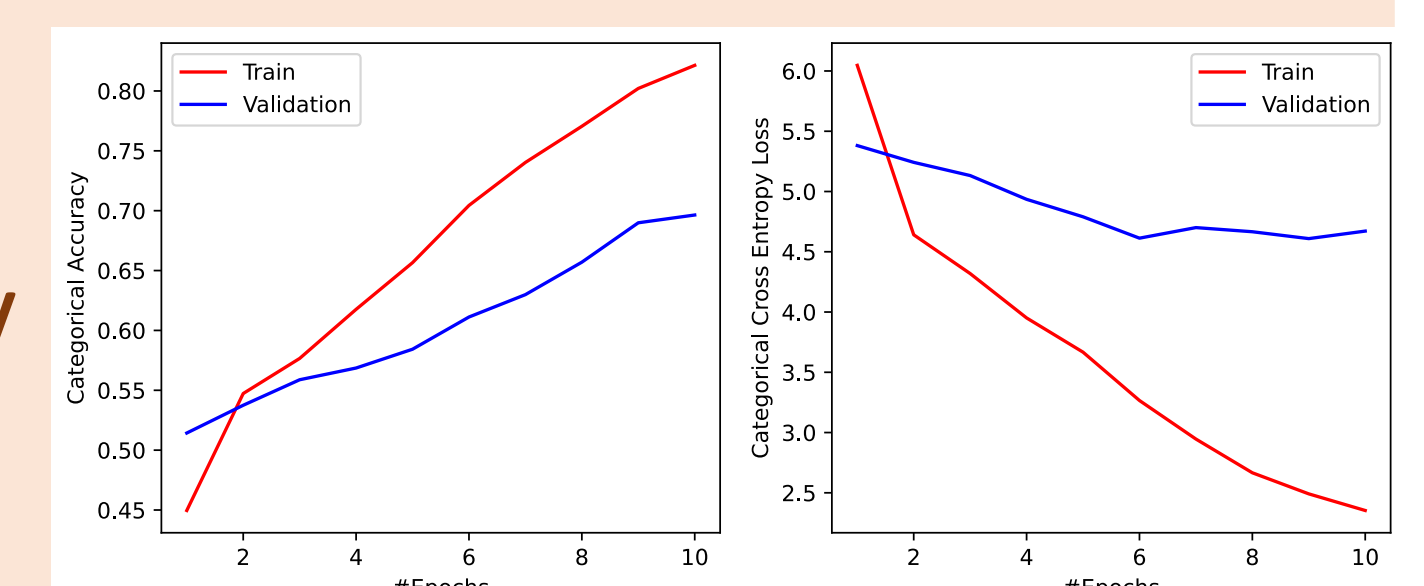


### 放銃牌 Prediction

Initial train



Refine with my data



## 放銃牌 Prediction Results

	TN+TP	FP	FN	FN+FP
Label				
Prediction				
# Samples	27	11	8	7
% Samples	51%	20%	15%	13%

## References

- [1] GanjiZero. Tenpai prediction. Github, 2019. Accessed 2023 Nov. [https://github.com/GanjinZero/Tenpai\\_prediction.git](https://github.com/GanjinZero/Tenpai_prediction.git)