A Solution to China Competitive Poker Using Deep Learning with Computer Generated Training Examples

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Motivation and Reference

Inspired by Liu Z, Hu M, Zhang Z.'s
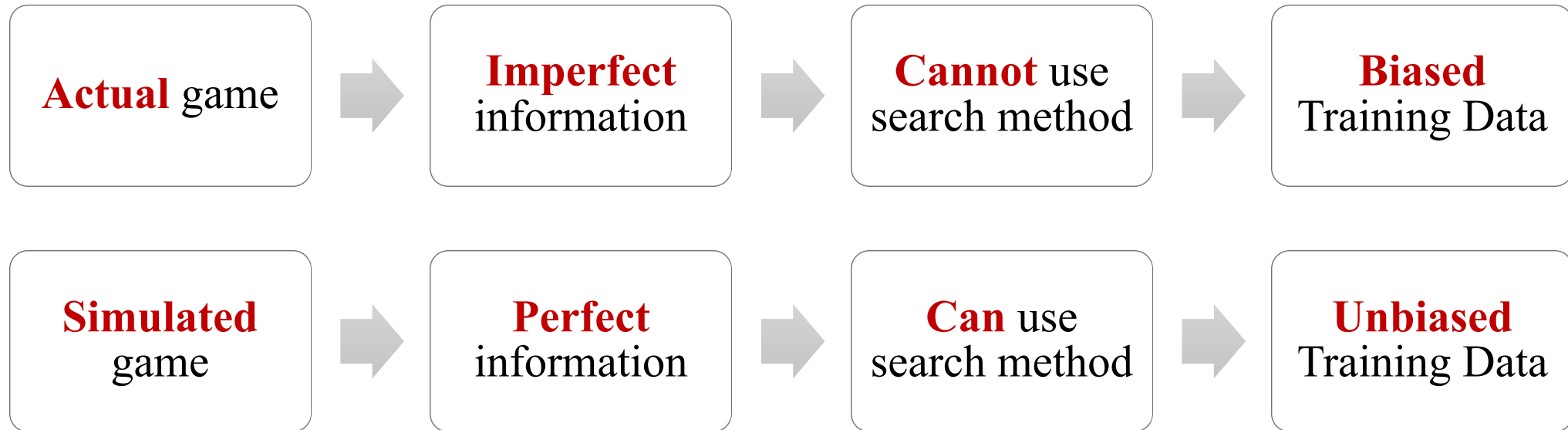**A Solution to China Competitive Poker Using Deep Learning**

- **China Competitive Poker (CCP)** – Dou Di Zhu (斗地主)
- **Deep Learning** – Convolutional Neural Network (CNN)
- **Training Data –** Real games played by human experts (lack!)

Keywords of our Study

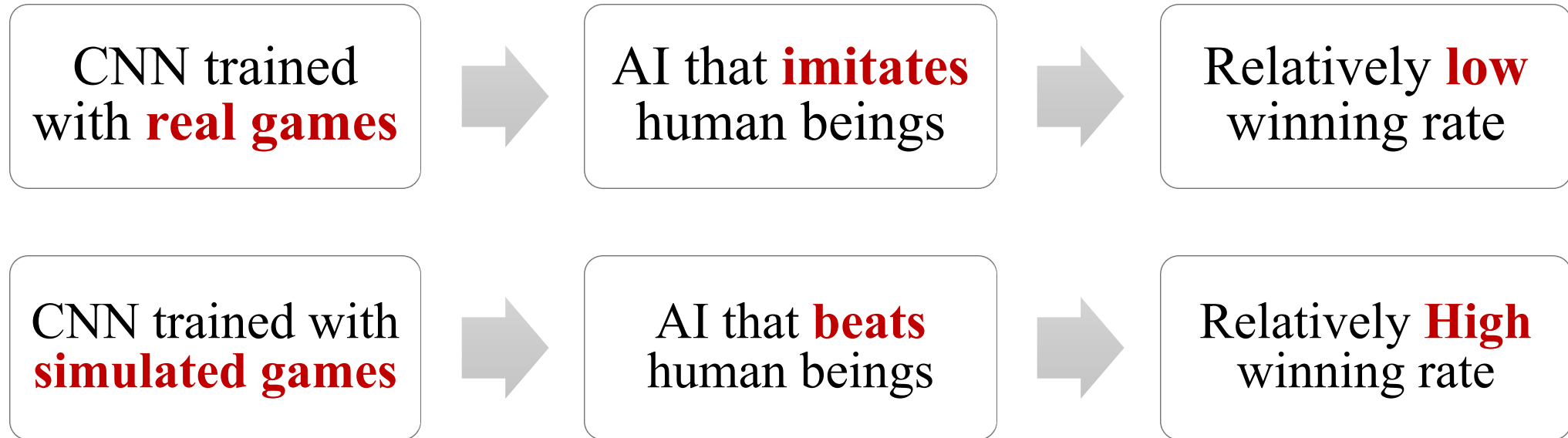**A Solution to China Competitive Poker Using Deep Learning with Computer Generated Training Examples**

- **China Competitive Poker (CCP)** – Dou Di Zhu (斗地主)
- **Deep Learning** – Convolutional Neural Network (CNN)
- **Training Data** – Computer Generated (better!)

Data Generation

| **Actual** game | → | **Imperfect** information | → | **Cannot** use search method | → | **Biased** Training Data |

| **Simulated** game | → | **Perfect** information | → | **Can** use search method | → | **Unbiased** Training Data |

- Based on the assumption of **perfect information**, apply **search method** such as Mini-max and Ant Colony to find the **best actions** for each player, and thus obtain the **"unbiased"** training examples.
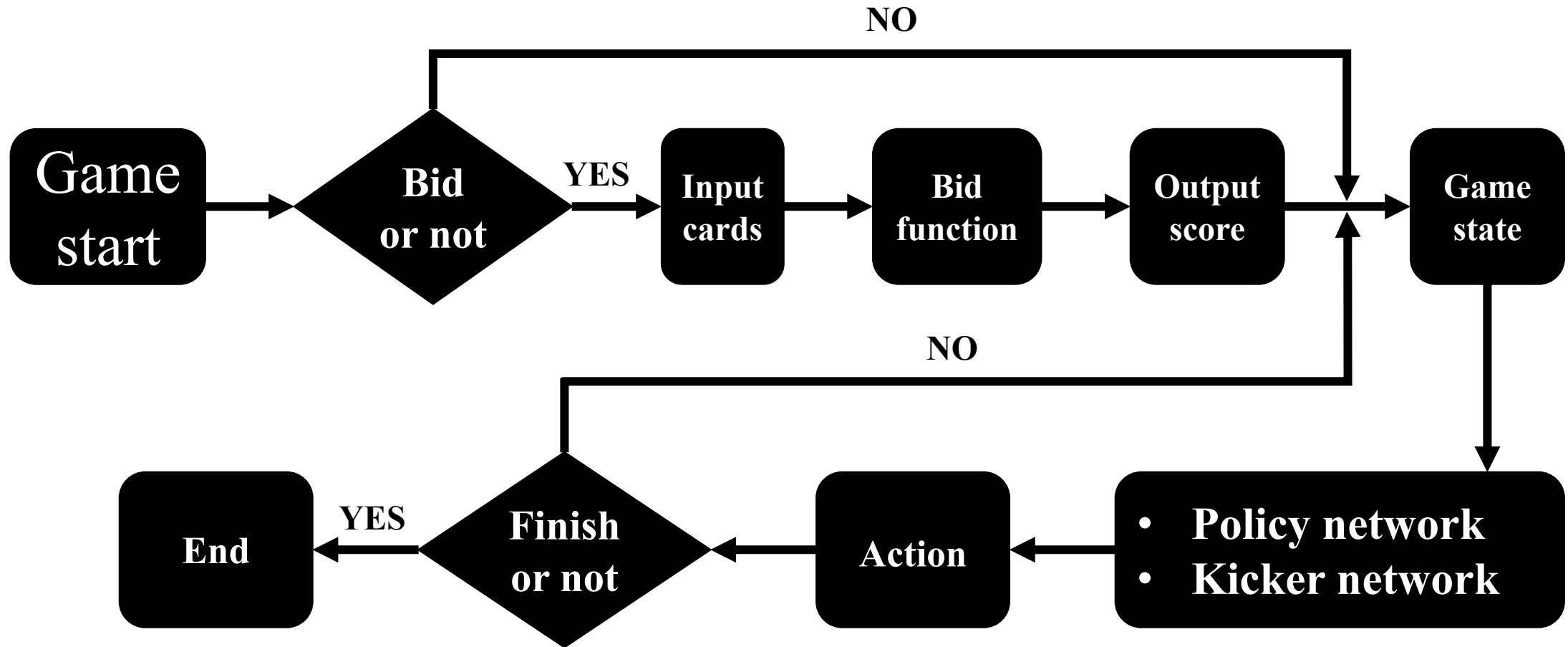
Goal

CNN trained with **real games** → AI that **imitates** human beings → Relatively **low** winning rate

CNN trained with **simulated games** → AI that **beats** human beings → Relatively **High** winning rate

- Use the computer generated, **"unbiased"** data to train a **CNN** with **high winning rate**.

Thank You

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Appendix: Training process

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