Yiwei Bai

ACM Class – Shanghai Jiao Tong University

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EDUCATION

ACM Class, Shanghai Jiao Tong University   **Shanghai**
Bachelor of Engineer in Computer Science   *Sept 2014–June 2018*

- Member of ACM Class, an elite CS program for the **top 5%** of talented students.
- Cumulative GPA: Overall: 86.0/100 | Major: 87.7/100
- Advisors: Prof. Yong Yu, Prof. Weinan Zhang and Prof. Guirong Xue

PUBLICATION

Scalable Relaxations of Sparse Packing Constraints
Optimal Biocontrol in Predator-Prey Networks

- Johan Bjorck, **Yiwei Bai**, Yexiang Xue, Xiaojian Wu, Mark Whitmore, Carla P. Gomes
- **Accepted by** *AAAI 2018*

An Empirical Study of Collective Behaviors in Many-agent Reinforcement Learning

- **Yiwei Bai***, Yaodong Yang*, Lantao Yu*, Jun Wang, Weinan Zhang, Ying Wen, Yong Yu(* indicates equal contribution) CoRR abs/1709.04511(2017)
- Submitted to *AAMAS 2018*, **also accepted by Aligned AI workshop@***NIPS 2017* **with spotlight**

MANUSCRIPTS

Deep Pseudo-Convolutional Reinforcement Learning for spatial planning problem

- **Yiwei Bai**, Johan Bjorck, Carla P. Gomes
- Submitted to *AAMAS 2018*

RESEARCH EXPERIENCE

Institute for Computational Sustainability   **Cornell University**
Visiting Research Intern   *June 2017–Dec 2017*

- Advisor: Prof. Carla P. Gomes
- Learning & Utilizing Submoldular Optimization on biocontrol of invasive species.
- Proposed a scalable approximation algorithm of sparse submodular optimization with Johan
- Applying Reinforcement Learning in the new CompSus field
- Proposed Deep Pseudo-Convolutional Reinforcement Learning framework for (ecological) spatial planning problem.
- Replicating AlphaGo Zero to obtain insights.

APEX Lab   **Shanghai Jiao Tong University**
Research Assistant   *June 2016–June 2017*

- Advisors: Prof. Weinan Zhang and Prof. Jun Wang
- Learned & Utilized Reinforcement Learning in the openAI environment and focused on multi-Agent reinforcement Learning
- Designed and Developed Million-level Multi-Agent Reinforcement Learning Platform, an open-source framework for large scale Multi-Agent Reinforcement Learning.
- Understood the AI population with multi-agent reinforcement learning and verified the principles developed in the real world could be applied to AI population.

Tianrang Network Technology Co.,Ltd   **Shanghai**
Research Intern   *June 2016–Mar 2017*

- Advisor: Prof. Guirong Xue
- Developed Yi, an AI system playing GO(game)
- Trained and tuned the policy network and value network
- Designed and implemented the reinforcement learning framework of the value network incorporated with the policy network
- Yi won the **Fourth prize** in the first International Computer Go Competition
- Yi won the **Third prize** in the 11th *UEC Cup*

CyberSecurity Camp@Singapore   **National University of Singapore**

Visiting Student   *Feb 2017*
- Organizer: Prof. Dawn Xiaodong Song
- Learned Courses of Deep Learning and Cyber-Security
- Participated in the Hackathon and did research in adversarial defense under black-box setting

PROJECT EXPERIENCE

ACM-2015-AI-Server   *Dec 2015*
- An AI server for *Animal Chess*, used in Programming Fall 2015 AI project ACM Honored Class.

Five-Stage MIPS Pipeline in Verilog HDL   *Aug 2016*
- Designed and implemented a five-stage pipeline for all MIPS integer operations exception co-processor instructions with forwarding optimization

Compiler MFChen   *May 2016*
- Designed and implemented a highly functional compiler of MFChen, a language mixing C and JAVA, from *Lexical Analysis* to *Register Allocation* phase.

An Empirical Study of Deep Learning Toolkits on Chinese Tone Classification   *Jan 2017*
- Designed methods for preprocessing data and feature selection.
- Designed a Convolutional Neural Network model and a Deep Neural Network model.
- Implemented in tensorflow, mxnet and theano and compared the three frameworks.
- Here is the technical report.

HONORS AND AWARDS

Gold Medal of ACM Shanghai Metropolitan Contest   *Apr 2015*
Honorable Mention in 2016 American Mathematical Contest in Modeling(MCM)   *Jan 2016*
Academic Excellence Scholarship of Shanghai Jiao Tong Univ.   *2015, 2016*
Zhiyuan College Honored Scholarship of Shanghai Jiao Tong Univ.   *2015, 2016*
First Prize at the NOIP(Provincial Level of China Information Olympiads)   *2013*

EXTRACURRICULAR PROJECT

Participated in Deep Learning Books Translation   *Apr 2016*
- Led by professor Yu Kai.
- Yoshua Bengio, Learning Deep Architecture for AI. Chinese edition is published.

SELECTED ACADEMIC PRESENTATIONS

- Poster session of NIPS 2017 AI Aligned workshop: **An Empirical Study of AI Population Dynamics with Million-agent Reinforcement Learning**
- Poster session of NSF SITE VISIT@Cornell: **Biocontrol of Invasive Species**
- A 15-minute presentation in reading club of Deep Learning: **Frontiers of DL for Security**
- A 30-minute presentation in reading club of Reinforcement Learning: On-policy Prediction with Approximation
- Invited talk in APEX lab: From AlphaGo to Yi

LEADERSHIP and ACTIVITIES

Vice president of GO(game) Club   *Sept 2015–Apr 2016*
Co-organizer of Shanghai University Student GO Competition   *Sept 2015–Apr 2016*
Teaching assistant of CS122: Introduction to Programming Language   *Sept 2015–Jan 2016*