

Yiwei Bai

ACM Class – Shanghai Jiao Tong University
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EDUCATION

ACM Class, Shanghai Jiao Tong University

Bachelor of Engineer in Computer Science

Shanghai

Sept 2014–June 2018

- Member of **ACM Class**, an elite CS program for the **top 5%** of talented students.
- Cumulative GPA: Overall: 85.7/100 | Major: 87.5/100
- 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

- Yaodong Yang*, Lantao Yu*, **Yiwei Bai***, 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**

MANUSCRIPTS

Deep Pseudo-Convolutional Reinforcement Learning for spatial planning problem

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

RESEARCH EXPERIENCE

Institute for Computational Sustainability

Visiting Research Intern

Cornell University

June 2017–Dec 2017

- Advisor: Prof. **Carla P. Gomes**
- Learning & Utilizing Submodular 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

Research Assistant

Shanghai Jiao Tong University

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

Research Intern

Shanghai

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 **Ninth place** in the 10th **UEC Cup**

- 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 (2nd) of Shanghai Jiao Tong Univ. (TOP 10%)

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 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