

# Yunshu Du

Intelligent Robot Learning Laboratory, Washington State University, Pullman, WA 99164

+1 (734) 635-1556 | [yunshu.du@wsu.edu](mailto:yunshu.du@wsu.edu) | [eeecs.wsu.edu/~ydu1](http://eeecs.wsu.edu/~ydu1) | [linkedin.com/in/yunshudu](https://www.linkedin.com/in/yunshudu)

## Education

### Washington State University (WSU)

PH.D. IN COMPUTER SCIENCE

- Adviser: Dr. Matthew E. Taylor
- Research Interests: Reinforcement Learning, Deep Learning, Applied Data Science

Pullman, WA  
EXPECTED June. 2019

### Eastern Michigan University (EMU)

B.S. IN COMPUTER SCIENCE APPLIED

- Graduated magna cum laude

Ypsilanti, MI  
GRADUATED Apr. 2014

## Technical Skills

**Programming Languages** Java, Python, R, Lua, C/C++, JavaScript, SQL

**Deep Learning Toolkits** Torch, TensorFlow, Caffe

**Data Science Softwares** RStudio, Weka

## Research

### Washington State University

IRL LAB, RESEARCH ASSISTANT

- **Transfer and Multi-Task for Deep Reinforcement Learning**

- Leverage transfer learning techniques in Google's Deep Q-network (DQN) to speed up learning in the domain of Atari Games.
- Modify the DQN structure to enable learning multiple games simultaneously thus improve time and data efficiency
- Initial progress obtained in the game of Breakout and Pong

- **Analytics on University Fitness Center Data**

- Analyze the anonymized WSU ID card (CougarCard) data to learn student exercise trends
- Optimize usage at WSU's Student Recreation Center by predicting peak hours
- Build fitness recommendation system with the goal of quantitatively increase students' exercise frequency

Pullman, WA  
May. 2015 - PRESENT

HPCBIO LAB, RESEARCH ASSISTANT

- **Scalable Topological Data Analysis**

- Analyzed genome data extracted from corn to determine how specific genes (genotypes) may impact corn appearances (phenotypes)
- Applied scalable topological data analysis (TDA) to build a tool for such an analysis

Sept. 2014 - Apr. 2015

## Publications

**Yunshu Du\***, Gabriel V. de la Cruz Jr.\*, James Irwin, and Matthew E. Taylor. *Initial Progress in Transfer for Deep Reinforcement Learning Algorithms*. In Proceedings of Deep Reinforcement Learning: Frontiers and Challenges workshop (DRL) (at IJCAI), New York City, NY, USA, July 2016. (\*Authors equally contributed)

**Yunshu Du**, and Matthew E. Taylor. *Work In-progress: Mining the Student Data for Fitness*, In Proceedings of the 12th International Workshop on Agents and Data Mining Interaction (ADMI) (at AAMAS), Singapore, May 2016.

## Awards

Apr 2017 **Travel Fund** CRA-Women Grad Cohort Workshop (success rate: 30%)

Apr 2017 **2nd Place** WSU Graduate Professional Student Association Research Exposition

Apr 2016 **Outstanding Graduate Teaching Assistant** Department of EECS, Washington State University

Washington D.C.  
Pullman, WA  
Pullman, WA

## Teaching

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### Washington State University

Pullman, WA

#### LEAD TEACHING ASSISTANT

Aug. 2016 - May. 2017

- Managed 50+ labs & undergraduate teaching assistants for 3 Computer Science courses, conducted weekly TA meetings
- Resolved student conflicts and bridged between TAs and instructors
- Graded exams and updated the main gradebook

#### TEACHING ASSISTANT

Aug. 2015 - May. 2016

- **Awarded Outstanding Graduate Teaching Assistant**, Department of EECS, Apr. 2016
- Led 3-hour lab weekly, adjusted teaching methods to accommodate student learning styles
- Held 2 office hours per week and extend hours for individual appointments. Graded assignments and exams
- Courses TAed: Program Design & Development; Advanced Data Structure; Web Development

### Eastern Michigan University

Ypsilanti, MI

#### TEACHING ASSISTANT & COMPUTER SCIENCE TUTOR

Sept. 2013 - Apr. 2014

- Led 2-hour lab weekly and graded assignments
- Provided walk-in tutoring for all undergraduate level Computer Science classes in the department tutor room (4-hour per week)
- Course TAed: Programming Data Structure; Computer Organization II; Applied Cryptography

## Presentations

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Jul 2017	Invited talk at CRA-Women Virtual Undergraduate Town Hall	Webinar
Apr 2017	CRA-Women Grad Cohort Workshop Poster Session	Washington D.C.
Apr 2017	WSU Graduate Professional Student Association Research Exposition ( <b>2nd place award</b> , poster)	Pullman, WA
Jul 2016	Deep Reinforcement Learning: Frontiers and Challenges Workshop, IJCAI 2016 (slides, poster)	New York, NY
May 2016	The Twelfth International Workshop on Agents and Data Mining Interaction, AAMAS 2016 (slides)	Singapore
Mar 2016	WSU Academic Showcase (poster)	Pullman, WA

## Activities

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May 2016	Imagine Tomorrow: Annual High School Problem-solving Competition (Judge)	Pullman, WA
Feb 2015	WSU Wiley Research Exposition (Lead Volunteer)	Pullman, WA
Nov 2013	Annual Michigan High School Programming Competition (System Developer & Volunteer)	Ypsilanti, MI
Jan 2013	EMU International Student Orientation (Group Leader)	Ypsilanti, MI

## Related Experience

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### EMU Division of Information Technology

Ypsilanti, MI

#### STUDENT ASSISTANT

Jan 2014 - Jun 2014

- PL/SQL development: Processed query requests for all university departments, such as creating a specific student mailing list
- Maintained department website: migrated email system from Zimbra to Google Apps; fixed broken links and update site information
- IT troubleshooting and hardware maintain; Generated teacher evaluation report and submit to Office of Records and Registration

### Michigan High School Programming Competition Online System

Ypsilanti, MI

#### PROJECT LEADER

Sept 2013 - Dec 2013

- Developed an updated version of the online submission and auto-grading system for the annual high school programming competition
- Led a group of 4 senior classmates: tracked project progress, scheduling weekly meetings, assigning tasks to team members
- Direct communication with the competition sponsors: the Michigan Association for Computer Users in Learning (MACUL) - SIGCS

### The Three Gorges Project Revisit

Chongqing, China

#### TEAM MEMBER (SPONSORED BY CHANGJIANG WATER RESOURCES COMMISSION (CWRC))

Jul 2011 - Aug 2011

- Converted paper data to MySQL database for local businesses; Quantitatively inspected industrial profit change since the city moved
- Interviewed 5-10 families regarding their financial situation changes since the move
- Contributed to the final written report