APPLICATION

Bowei He

For a summer internship

abo

I am Bowei He, a new junior student from Beihang University. I am applying for a summer internship position in your lab in MIT especially in the areas of micro-scale robotics and feedback control. My prior work is mainly about deep reinforcement learning. I am a self-motivated undergraduate student and have the abilities of programming with python(tensorflow),C++,matlab,verilog in linux system.

cont

in

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EDU

Major:Automation science and electrical engineering / 3.74(till now) GPA

Major courses GPA:3.82

Beijng

Beihang University

Minor:mathematics and applied mathematics

Expected Graduation: June 2021

SKI

Python/tensorflow

C++

matlab

verilog

linux

AWAR

Second-class Scholarship for Excellence

BUAA */ Spring & Fall 2018*

Subject Competition Scholarship

BUAA*/ 2018*

Honorary Nomination Award

MCM/2018

Personal Honour Award

Zhou Peiyuan mechanics competition/2019

relevant experience

Summer 2019

Location: Westlake University, Hangzhou

- Investigate and research the related papers about RL in top conferences
- Determine the topic: temporal leap hierarchical reinforcement learning
- Programme with python and deep learning framework tensorflow.
- Test our idea in Mujuco Enviroments
- Maintain a community about tensorflow in our university with the technical experts from MSRA, Megvil, Sensetime.

Fall 2019-Spring 2020

Location: Tsinghua University ,Institute for Interdisciplinary Information Science

- Collaborate with Phd candidate Siyuan li and other undergraduate students from yao class on the topic of meta hierarchical reinforcement learning
- Wait for our news in ICML2020！！！
- I am also collaborating with prof.Zhaoran Wang in Princeton on the topic of non-convex optimization applied to deep RL.

Application letter:

Dear Prof.Chen:

I'm Bowei He, a new junior student in college of automation science and electrical engineering, Beihang University. I am writing this letter applying for an intern position in your lab next summer. I want to do some creative work in deep reinforcement learning and micro-scale robotics. I have completed the open courses, CS231n(convoluntional network for computer vision), CS294-112(deep reinforcement learning) and related assignments. Also, i have got good grades in basic math lessons, like mathematical analysis (98), probability theory(94), complex function(99), control theory(99), linear algebra and numerical optimization.

As for personal skills, i can use tools like github and program with python and C++ in linux system. I've participated in the program about acceleration of graph algorithms on FPGA, advised by prof. Jianlei Yang. This summer, i came to Westlake University and worked as a research intern in machine intelligence lab advised by prof. Stanz li and prof. Eric Wang. Here, my topic was mainly about model-based hierarchical reinforcement learning to achieve sample-efficient algorithms. I proposed a novel temporal leap HRL algorithm and intended to publish it on AAAI2020 conference. Unfortunately , the experimental performance in Mujoco environments was not satisfying. This semester,i participate in the machine intelligence lab in IIIS, Tsinghua University as a research intern advised by prof.Chongjie Zhang(http://people.iiis.tsinghua.edu.cn/~zhang/). Here, i collaborate with Phd candidate Siyuan Li on the topic of meta hierarchical reinforcement learning. I am now also working with prof.Zhaoran Wang in Princeton and we mainly focus on non-convex optimization applied to deep reinforcement learning.

I've read your work about micro-scale robotics and feedback control during the research.They are really cool! My aim is to combine the traditional model- based control and the state-of-art data-driven control to solve high-dimensional complex control problems. But in this period, my interest is mainly about how to design an efficient reinforcement learning framework and how to give a good model applied to the domains like navigation and other robotics areas. I've heard that you have made a lot of high-quality work in micro-scale robotics, feedback control and related areas. And i really want to continue my research under the advisement of you next summer. I hope to conduct a good research about combination of RL and control theory which could be applied to the real-world robots.

Here is my github website :https://github.com/hebowei2000

Here is our temporal leap algorithm this summer: https://github.com/AlexZhaoZt/Temporal_Leap_HRL

(work completed by me and Alex zhao (toppest student in CS department) from Umich Anna Bao)