

# Personal Statement

## of Jiajun Fan (PhD applicant for Fall—2021)

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Thank you very much for taking the time to read my personal statement. My name is Fan Jiajun, and I am from the School of Artificial Intelligence of Nankai University. My current grade is: 92.88 / 100, and the professional ranking is 1/87. I am sure that I will be eligible for graduate study without post-graduate entrance examination this year. I am currently engaged in the field of reinforcement learning and stochastic optimal control, published a total of two papers, and other two are still in writing.

## 1 Research Experience

Since the freshman year, I had completed the basic planning of the university. The first grade of the university mainly improved my grades, and I participated in the competition in the second grade of the university. In the third year of university, I fully invested in research and paper publication of reinforcement learning.

So far, I have spent about three years looking for my scientific research interests and experienced EEG research, robotics, signal recognition, tradition control, modern control, reinforcement learning and other research areas. I am fortunate to finally find my research interest, which is reinforcement learning. In the following I will introduce my research experience in detail.

### **Project #1:** Human Pose Recognition Project

*Jun.2018 - Sept.2018*

In order to be able to better integrate into the atmosphere of scientific research in the later period, I joined the laboratory as a freshman, and joined the teacher's laboratory of [Duan Feng](#) to engage in brain science related research. Of course, what I initially did was only a visual reconstruction related project.

In this project I learned the basic methods and steps of scientific research.

### **Project #2:** Robot Development Project

*Sept.2018 - Jul.2019*

When I was in my sophomore year, I participated in [RoboCup](#) related events, so I joined [Jeffrey Too Chuan TAN](#)'s laboratory to work on robot development, mainly for navigation and voice related work. Project results are finally presented in the 2019 RoboCup Sydney Finals.

In this project, my development level and team spirit have been greatly improved. I completed an independent research project for the first time.

### **Project #3:** Pattern Recognition and System Recognition Projects

*Jul.2019 -Sept.2019*

During the sophomore summer vacation, I joined [Fang Yongchun](#)'s research group, mainly doing some tasks related to signal recognition and establishment of industrial communication.

In this project, I learned how to apply the knowledge I learned to practical fields, and mastered many modern and traditional control algorithms, laying a solid foundation for the current combination of reinforcement learning and traditional control algorithms.

### **Project #4:** Reinforcement Learning Project

*Sept.2019-present*

With the deepening of learning, I gradually discovered that I have a strong interest in deep reinforcement learning. I started to study related courses and did some reinforcement learning related research with Teacher [Guo Xian](#). This is also an area I am currently interested in and hope to engage in in the future.

In this project, I finally found the area I love, which is deep reinforcement learning. I have published one paper in a few months of research, and two other papers are being written, hoping to submit to **CAC 2020** and **NIPS 2020**.

## 2 Research Plan

Now when I apply for the next stage of study, my main goal is to directly pursue a PhD, because I have spent about three years looking for my scientific research interests and I am fortunate to finally find

my favorite direction-reinforcement learning, so I do not need to find out whether I need to study for a PhD or to find out what I really want and what direction I like to study.

In the following I will introduce my plan for my PhD career.

**Stage #1:** Adapting to the environment and continuous learning

*Expected 2021-2022*

If I study directly for a PhD, I can transition in the first year (or internship in the fourth year of university), and complete the transition from undergraduate to the position change of the Ph.D.

**Stage #2:** Accumulate experience and explore improvements

*Expected 2022-2023*

I plan to gradually accumulate the foundation and experience in the frontier field of reinforcement learning (similar to multi-agent reinforcement learning) in the second year. I hope to have some insights and ideas at the end of the second year.

**Stage #3:** Publish papers and attend conferences

*Expected 2023-2025*

In the third and forth years, after one-year accumulation of my research field , further research can be carried out under your guidance, and related research can be followed up in real time. I hope to have more opportunities to contribute to research in the field of reinforcement learning, and at the same time to communicate with people who like and love this field in the world.

**Stage #4:** Summary and Outlook

*Expected 2025-2026*

In the last year of my Ph.D. career, I hope to be able to write a graduation thesis under your guidance and graduate successfully, hoping to continue research in the field of reinforcement learning under your guidance.