Next Generation AI Human Resource Development Program

(Support for doctoral students)

BOOST: Broadening Opportunities for Outstanding young researchers and doctoral students in STrategic areas

Student Application Guidelines

For doctoral students enrolled
in the 2024 academic year

Osaka Metropolitan University
Doctoral Human Resource Development Support Office
And
Graduate School of Informatics

May 2024

1. Program Objective

Osaka Metropolitan University Graduate School has been selected for the “Next Generation AI Human Resource Development Project” (BOOST) in addition to the “Next Generation Researchers' Challenging Research Project” (New SPRING) by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) and the National Institute of Science and Technology Agency (JST) in April 2024. This initiative is targeted at students in the latter half of the doctoral program. This means that the University will continue to provide more substantial support.

BOOST aims to support students who possess the drive and ability to pioneer and lead the next generation AI field of the future. We welcome applications from a wide range of academic disciplines.

2. Ideal image of human resources to be developed through the support of this project

This project is open to doctoral students aiming to further deepen AI/Informatics, as well as to those specializing in academic fields other than informatics, but are dedicated to using AI/Informatics to conduct research in their field of specialization or to address social challenges.

Applicants are expected to possess (1) a desire to acquire transferable skills, (2) the ability to conceive and concretely plan research that integrates various disciplines, (3) communication skills in foreign languages to promote joint research with domestic and overseas research institutions, (4) the ability to act to tackle social issues and foster innovations, and (5) Strong interest in studying AI and informatics.

Selected Students will have the opportunity to participate German Research Center for Artificial Intelligence (DFKI), an international Center of Excellence (CoE) in the field of AI, to experience international industry-academia co-creation innovation at the DFKI. The participants will hone their knowledge and skills as "next-generation AI personnel" by experiencing international industry-academia co-creation innovation at DFKI.

In the future, students are expected to become top-level researchers in their respective fields of expertise, or to become human resources who can contribute to strengthening Japan's industrial competitiveness by creating innovations in their respective industries and sectors. Students specializing in fields other than informatics are encouraged to reach a level where they can utilize their skills in programming, machine learning/algorithms, databases, mathematics/statistics, etc. in conducting their own research, and to enable pursuing AI engineers or data scientists.

The specific images of human resources to be developed are shown in (a) and (b) below.

(a) Interdisciplinary AI human resources :

These individuals who are able to make full use of knowledge and technology in the fields of AI and informatics to advance efforts solving problems in their own research themes and addressing social issues with the aim of realizing innovations that cannot be conceived by specialists alone.

(b) Core AI human resources :

These individuals who have a deep understanding of the core technologies that form the "core" of AI, and who aim to be leading researchers in basic, applied, or pioneering areas in the field of AI by creating new technologies based on new ideas, and by discovering essential issues inherent in multiple problems across disciplines, and who can also advance research arena in the field of AI and informatics. They are visionary talent of advancing initiatives with an eye to the future.

3. Application Requirements

1) Applicants must be enrolled in either a 3-year program or a 4-year program at Osaka Metropolitan University as of April 2024 and intend to obtain a degree within the standard term of study.

* Before applying, it is advisable to consult with your academic advisor.

2) Applicants who possess a background in AI/Informatics alongside their own field of specialization or are able to utilize AI/Informatics to solve their own research problems and social issues in their doctoral program. Additionally, applicants who are not majoring in informatics but are enthusiastic acquiring to study AI/Informatics knowledge and skills either as a specialty or as a secondary field of study.

3) Applicants must have a strong will and motivation to grow as leading scientists through full-scale promotion and leadership of research in the field of next-generation AI in the future with the support of this project.

* <u>All graduate schools and majors are eligible, in addition to the Graduate School of Informatics. The applicable academic year is the 2nd to 4th year of the doctoral course for the Graduate School of Veterinary Medicine and the Graduate School of Medicine, and the 1st to 3rd year of the doctoral course for the other graduate schools.</u>

* In addition, those who have already been selected for the “University

Fellowship Program", "Next-Generation Researchers Challenging Research Program", and "Next-Generation Researchers Challenging Research Program" (New SPRING) are also eligible to apply.

*** However, individuals meeting the following criteria will not be eligible for support**

- Students who have been selected as a Research Fellowship for Young Scientists (DC) of the Japan Society for the Promotion of Science (JSPS)
- International students supported by the Japanese Government (Japanese Ministry of Education, Culture, Sports, Science, and Technology [MEXT]) Scholarship Program
- International students who receive scholarships and/or other support from their home country
- Those who have received a sufficient level of scholarship (2.4 million yen/year) for living expenses.
- Those who are recognized as receiving a stable and sufficient amount equivalent to living expenses (2.4 million yen/year) from their university, company, etc.

[Note]

* Students selected for this project will not qualify for exemption from repayment of scholarships from the Japan Student Services Organization (JASSO) for particularly outstanding achievement.
* If a student receives support from a program only for research expenses but not for living expenses, the student is eligible for this program; however, the student must confirm in advance with the program sponsor whether the support can be combined.

4. Details of Support

The following support will be provided to students selected for this program.

3,900,000 yen per year for research scholarship (equivalent to living expenses) and research expenses

*Research scholarship (equivalent to living expenses) is treated as taxable income and subject to taxation. Each recipient is required to file his/her own tax return and pay taxes.

*Research expenses may be used to purchase facilities, equipment, and supplies necessary for the selected student's own research, and to cover travel expenses (transportation, accommodation, and daily allowance) for overseas and domestic trips related to research activities (collection of materials, various surveys, conferences, research and development, presentation of results, etc.). However,

the same university accounting procedures as those for faculty members must be followed in the execution of expenses.

*The amount allocated for this year is planned to be 3,000,000 yen for the research incentive and 900,000 yen for the research expenses. However, this amount is subject to change before the start of the program. In addition, selected students must submit a written plan for the use of the funds and obtain approval from the university. Please note that any used portion of the 3.9 million yen or the remaining balance cannot be carried over to the next fiscal year.

5. Period of Support and Eligibility

1) Period of support:

From the date of adoption to the end of the standard term of study

Doctoral course Doctoral course (Medical, Veterinary)	FY2024	FY2025	FY2026	FY2027
Doctoral course 3 years Doctoral course (Med., Vet.) 4 years	Selected			
Doctoral course 2 years Doctoral course (Med., Vet.) 3 years	Selected →			
Doctoral course 1 years Doctoral course (Med., Vet.) 2 years	Selected →	→		

2) Conditions for eligibility for support:

* Support will be terminated in the event of suspension, expulsion, or withdrawal from school. Support will not be provided after reenrollment to school. Please note that if you take a leave of absence, are expelled, or withdraw from school during the support period, not only will your support be terminated, but depending on the reason, you may also be asked to return the support funds you have already used.

* If you are selected as a JSPS Postdoctoral Fellow in the following fiscal year, this program will be treated as a decline and you will not be able to receive the compensation from this program.

6. Student Obligations

Selected students will be required to participate in the following 1). In addition, since this program will be implemented in conjunction with the new SPRING project, we plan to impose certain responsibilities from the viewpoint of human resource development.

1) Required items (planned) :

・Participation in orientation workshops organized by the Project
・Training at the German Research Center for Artificial Intelligence (Language: English) * The research grant will be used for this purpose
・Participation in events related to this project and cooperation in interviews
・Presentation of research achievements at domestic and international academic conferences, etc.(The research results should incorporate elements of AI and informatics into his/her own research. Informatics societies are preferred, but others are also acceptable.)
・Cooperation in career path surveys after the completion of the support.

(Reference)
Example of a program for sending students to DFKI :

1) Selected students will be briefed by faculty members of the Graduate School of Informatics and staff of DFKI in advance to prepare for their trip.
Selected students will also participate in opportunities to interact with DFKI faculty and staff in advance (sometimes online).They will then set clear goals for maximizing their experience in how they can make the most of the DFKI training program.

2) During their stay at DFKI, dispatched students will learn how to use AI and informatics to promote their own research projects and create innovations in an international industry-academia co-creation environment. They will also participate in group work with fellow students and learn and foster a teamwork.

3) If students have any concerns about their daily life during their stay in DFKI, they can consult online with local staff collaborators as well as with the project team members and mentor faculty.

4) Selected students will receive appropriate guidance and advice from the project's steering committee members and host faculty members, both before and after their training at DFKI until the completion of their fin al doctoral dissertation.

2) Matters collaborative participation with SPRING projects (recommendation)

・Participation in events sponsored by the SPRING program as much as possible.

(Reference)
Linkage with the New SPRING Project:

(1) The New SPRING Project offers various exchange opportunities such as internships, support for study abroad in Japan, interdisciplinary research

exchange meetings to acquire transferable skills, and career design support and interactive matching to develop career paths.
Selected students should take advantage of these opportunities to learn a wide range of methods for advancing research and solving problems based on the conception of new ideas for their own research and exploring new possibilities in different interdisciplinary fields.

7. Number of Students to be accepted

Approximately 1-4

8 . Schedule

1) Application period

Both "Inputting information into the application form" and "Submitting the application form" are required by May 25, 2024, until 23:59 (Saturday)

2) Document Screening, Interview Screening

In cases of a large number of applicants, there may be a screening process to select candidates who will proceed to the interview stage following document screening. Thank you for your understanding.
The interview dates will be notified to the email address registered on the application form around May 31, 2024 (Friday) to June 3, 2024 (Monday). We will not respond to inquiries about acceptance or rejection via phone or other means.

3) Interview Screening

Thursday, June 6, 2024 - Thursday, June 13, 2024 at a specified time (20 minutes)

4) Announcement of Successful Applicants

Scheduled on or about June 21, 2024 (Friday). Interview candidates will be notified of acceptance or rejection to the e-mail address provided in the application form.
We will not respond to inquiries about acceptance or rejection via phone or other means.

9. Application Process

1) Inputting information into application form:
Please access the "Next Generation AI Human Resource Development Project Application Form" and input in the required information.
https://forms.office.com/r/J1nXwmcg3c

* Submission deadline: May 25, 2024 (Sat.) 23:59

* The application form will be used to schedule the interview screening and to gather information regarding the applicant's preference for an interview in English, etc. Please ensure to answer all the questions on the application form.

2) Submit application form (Word, PDF file):
Download the (Form 1) "Application Form" (Word file) from the project website information. Fill in the application form, then, send both the Word file and the PDF file to the following e-mail address.

* File submission deadline: May 25, 2024 (Sat.) 23:59
* Send files to: gr-i-boost@omu.ac.jp

*The application form may be submitted in either Japanese or English format.

* Please name the file "Student ID Number_Graduate School Name_Applicant's Name (Last Name and First Name)" when submitting the application.

*Please prepare a frontal photo of your face from head to shoulders, and paste it in the frame in jpg or png format.

*The following photo conditions are not acceptable: images with coarse pixels, images that are not pasted within the frame, images with altered aspect ratios, and those processed or modified using image software.

3) Notes for special caution

(1) Incomplete application documents will not be accepted.
(2) Documents submitted at the time of application will not be returned.
(3) No revisions of documents are allowed after the application procedure has been completed.
(4) If provided information is not true, the applicant's eligibility to participate in this program may be revoked.
(5) Personal information provided by applicants will be used solely for the selection purpose.

10. Selection Method

1) Examination contents :

Screening	Scoring	Outline etc.
Document	100 points	Document appropriately according to the items in the Application Form (Form 1). provide a clear overview of the research project you are currently engaging in and explain specifically how you will develop your research using the AI/Informatics field, and achieve your future career.
Interview	100 points	The interview will be conducted online; applicants must provide their own PC and network environment. The interview will begin with a 7-minute presentation of the essay (PowerPoint, etc. may be used), followed by a 13-minute question-and-answer session.

2) Evaluation method :

The evaluation will be based on a 200-point scale consisting of a document review and an interview.
Scoring will be conducted in accordance with the criteria in the "Rubric Evaluation Table for the Next Generation AI Human Resource Development Program " on p. 9.

11. Contact for Inquiries

If you have any questions about this project, please contact us at the following e-mail address, indicating your student ID number, graduate school name, and name. Please note that we cannot respond on weekday evenings, weekends, and holidays, and that it may take some time to reply depending on the content of the inquiry. Please note that we cannot respond to inquiries by phone.

Support Office, Graduate School of Informatics, Osaka Metropolitan University
E-mail: gr-i-boost@omu.ac.jp

Rubric Evaluation Table for Selection of Doctoral Students for "Support for Next Generation AI Human Resource Development Program"

Section		Out of evaluation or unevaluable	Greatly below standard	Below standard	Standard	Above standard	Greatly above standard
		score: 0	score: 1	score: 2	score: 3	score: 4	score: 5
1	Understands the importance of transferable skills and is willing to learn them.	Nothing at all	Not much	Understands, but lacking detail	Understands and can explain well	Understands well and has a concrete plan in mind	Thinking concretely and taking action according to a plan.
2	Be aware of their career path after completing the program and think about how they would like to play an active role and contribute to society.	Nothing at all	Not much	Thinking about it, but lacking detail	Thinking and can explain .	Thinks about well and has a concrete plan in mind.	Thinking concretely and taking action according to a plan.
3	Interest in fields outside their own research and a strong desire to understand and incorporate them.	Nothing at all	Not much	Thinking about it, but lacking detail	Willing and can explain.	Strong motivation and have a concrete plan.	Strong motivation and will to take action based on a concrete plan.
4	Understands the relationship between his/her research and the solution of contemporary social issues, the creation of leading research fields, and the creation of a future society	Nothing at all	Not much	Understanding and willingness, but lacks specificity	Understanding and willingness to explain	Understands well and has a concrete plan in mind	Strong motivation and will to take action based on a concrete plan.
5	There is a plan to acquire knowledge and skills in the field of AI and informatics, and the research plan incorporates the possibility of combining AI and informatics with his/her own research to make a quantum leap forward.	Nothing at all	Not much	Understanding and willingness, but lacks specificity	Understanding and willingness to explain	Understands well and has a concrete plan in mind	Strong motivation and will to take action based on a concrete plan.

* Since this project plans to use the research funds provided by the selected students for a research trip to the German Research Center for Artificial Intelligence (DFKI), please consider plans that incorporate this into your own research plan. Please note that applications can also be submitted for plans planned by individuals other than DFKI for research institutions in Japan and abroad.

(Form 1)

Application Form

Name			space for photographs
Affiliation	Graduate school of		
	Department in		
	Grade		
Academic supervisor (or desired academic supervisor)			
Subject of research			
Research keywords (about 5)		・ ・ ・ ・ ・	

Major Papers, etc.（Top 5 th.）

Classification.	Title of paper（book title、subject etc.）	Publications（Academic Society Name、Publishers, etc.）	Date of Publication	Author Name

※The classification should include "refereed paper," "thesis," "conference report," "conference poster presentation," etc. In the case of an award-winning paper such as a conference presentation, the name of the award should be added after the "Date of presentation" column.

Please start your essay from the next page in accordance with the instructions below.

1. Please use the format provided on the next page and subsequent pages to prepare your essay
2. Explain your research and thoughts described in 1) through 4) below in simple terms so that it is easy for people outside your area of expertise to understand
3. Supplementary figures, tables, graphs, etc. may be used in the explanation. (However, no more than 8 pages including this page as the format of (Form 1)). In English, the maximum length is 3,000 words. When describing achievements and other information in the text, do not include your name, but write "Applicant.
4. Indicate the number of characters in parentheses at the end of each question.

5. Please describe the contents of the following six items 1-1)~6).

All items except 5) are the same as for the new SPRING project.

1-1) Describe your research in a concise and easy-to-understand manner, including the purpose of your research, research methods, research content, and the characteristics and originality of your research (comparison with previous research, expected impact upon completion of the research, future prospects, etc.).

1-2) Then, describe in detail what and to what extent you intend to clarify by the time you obtain your degree Specifically.

2) Describe how the research results obtained in this program will lead to one or more of the following: (1) resolution of social issues, (2) creation of a leading research area, or (3) creation of a future society.

3) Describe what areas of interest you have outside of your research area and how you plan to incorporate them into your own research.

4) Describe the transferable skills* you plan to acquire through this program and explain the reasons why you want to obtain these skills and how to acquire them.

(*Transferable skills in this program include skills that can be widely transferred and applied, such as originality, flexible mindset, rising to challenges, ability to identify research needs, research management skills, data analysis skills, presentation ability, leadership skills to attract people, and other skills that are required in developing innovative human resources.)

5) Describe how you plan to combine AI and informatics in your research and what you expect to achieve by doing so.（Please refer to "2. Human Resources to be Developed through the Support of this Project" on p. 1 and "6. Responsibilities of Selected Students" on pp. 4-5 of this application guideline.）

6) Describe your ideas about your career path after completing your doctoral course, and how you would like to be active and contribute to society.

【Essay】

The maximum word count (for total number of words in items 1-6) shall be 3000 words when written in English.

1-1) Describe your research in a concise and easy-to-understand manner, including the purpose of your research, research methods, research content, and the characteristics and originality of your research (comparison with previous research, expected impact upon completion of the research, future prospects, etc.).【around 1000 words】
Images, charts, and graphs should be grouped together on a single page at the end.

（ words）

1-2) Describe in detail what and to what extent you intend to clarify by the time you receive your degree.【around 500 words】

（ words）

2) Describe how you think the research results obtained through this program will result in one or more of the following: (1) solutions to social issues, (2) creating leading research areas, and/or (3) creating a future society.【around 500 words】

（ words）

3) Describe what areas of interest you have outside of your research area and how you plan to incorporate them into your own research.【around 300 words】

（ words）

4) Describe the transferable skills* you plan to acquire through this program and explain the reasons why you want to obtain these skills and how to acquire them.【around 300 words】

（ words）

5) Describe how you plan to combine AI and informatics in your research and what you expect to achieve
by doing so.【around 1000 words】

（ words）

6) Describe your ideas about your career path after completing your doctoral course, and how you would like to be active and contribute to society.【around 300 words】

（ words）

Images, charts, and graphs should be on one page at the end.

Please provide figure numbers and captions so that we know where they are cited.