

MMDD, YYYY

To whom it may concern,

Thank you very much for your interest.

I am Tomohiro Fukuda, PhD, a Professor in the Division of Sustainable Energy and Environmental Engineering, Graduate School of Engineering, The University of Osaka, Japan.

The official name of the laboratory I belong to is Environmental Design and Information Technology Subarea (Fukuda Laboratory), Sustainable Environmental Design Area, Course of Environmental Engineering, Division of Sustainable Energy and Environmental Engineering, Graduate School of Engineering, The University of Osaka.

We are challenging ourselves to solve environmental problems from the perspective of Advanced Information Technology (AIT). Specifically, we are developing new methods by developing information technologies such as Virtual Reality (VR), Augmented Reality (AR), Mixed Reality (MR), Artificial Intelligence (AI), Point clouds, and Building Information Modeling (BIM) etc. for the environmental design of cities, architecture, and landscapes.

Our website and my latest CV is updated at

<http://www.see.eng.osaka-u.ac.jp/seeit/seeit/>

<https://www.scopus.com/authid/detail.uri?authorId=58093701800>

<https://www.webofscience.com/wos/author/record/1116079>

<https://researchmap.jp/tomohirofukuda?lang=en>

You can also watch my keynote presentation at the SIGraDi 2020 conference.

<https://www.youtube.com/watch?v=Ov0RzjzWG1Q>

Please access some of our published work (see also Q13) and try to understand what we do and to draw what you will contribute.

As my supervised students, I expect you to be able to sort through a lot of things quickly, think logically and carefully, and complete your research and assignments on time.

If you are interested in becoming a PhD program student after passing the entrance exam, I would like to make a comprehensive decision on your acceptance after confirming your specific abilities and achievements.

In order to apply for a PhD dissertation during the doctoral program, the following requirements must be met.

The candidate must have published at least three journal articles related to the candidate's dissertation, at least two of which must be first authored by the candidate.

One of the three journal articles may be under review. And one of the three papers must be in English or an international conference paper with the PhD candidate as the first author.

In other words, the minimum requirements for PhD candidates are

- Two articles published (or already accepted for publication) in journals.
- Submitted to another journal or presented in an international conference paper with full paper review.

I have the following questions. Please answer them as soon as possible (the approximate time frame is one – three weeks) if you apply.

Tomohiro Fukuda, The University of Osaka

**Q1.**

Please send me both copies of your undergraduate and graduate (master's) diplomas and transcripts.

Answer:

**Q2.**

If we accept you to come to The University of Osaka, when do you hope to start your PhD program? And, when do you hope to start your research student (non-regular student) to prepare for entering the PhD program, if necessary?

- Entrance exam in August (application form submitted in July): Enroll October 1 of that year or April 1 of the following year
- Entrance exam in late November (application submitted in October): Enroll April 1 of the following year

Application form (check the latest one):

[https://www.eng.osaka-u.ac.jp/en/entrance/f\\_admissions/](https://www.eng.osaka-u.ac.jp/en/entrance/f_admissions/)

Answer:

**Q3.**

Have you taken a TOEFL (TOEFL iBT) or TOEIC or IELTS test in the last two years? Send me a digital copy of your best score from two years ago. If not, when will you take the test?

Answer:

**Q4.**

Programming: Have you ever developed computer software(s) using any programming language (C/C++/C#/Java/Python, etc.)? Please describe the applications you have developed. Have you used Microsoft Visual Studio, OpenCV, Unity, Unreal Engine etc. as development tools? Please demonstrate your output(s).

If not, are you willing to learn? If yes, how?

Answer:

**Q5.**

Have you ever built an environment for an AI-related system? For example, can you download the machine/deep learning source code available on GitHub and run it on Ubuntu or Windows?

If you have no experience, are you willing to learn? If yes, how?

Answer:

**Q6.**

3D Modeling: Have you ever used 3DCAD/BIM and CG software such as Revit/AutoCAD, SketchUP, 3dxMAX, Rhinoceros, etc.? Can you write scripts such as Autodesk MAX Script or Dynamo, Grasshopper in conjunction with CAD/BIM software? Please demonstrate your output(s).

If you have no experience, are you willing to learn? If yes, how?

Answer:

#### **Q7.**

Please send your published academic paper(s) with the list.

Are these papers peer-reviewed? Please explain for each paper. Also, have you ever published any peer-reviewed papers in English? Also, indexed in Web of Science and/or Scopus?

Answer:

#### **Q8.**

Describe your Japanese language skills. Reading, Writing, Listening, and Speaking.

Although the Ph.D. research itself can be supported in English, it is better to be able to use Japanese for life in the lab and in Japan.

Answer:

#### **Q9.**

Explain your financial plan for attending The University of Osaka and living in Osaka.

There are many external scholarship programs, and PhD students are often given more preferential treatment over master's students. However, it is competitive and no promises can be made.

Answer:

#### **Q10.**

Why do you want to do research and training in our lab?

Answer:

#### **Q11.**

Are there any other universities or labs you are applying to? If so, which university/laboratory? If so, please let me know their priorities if possible.

Answer:

#### **Q12.**

After entering the PhD program, the important task of a PhD student is to publish a research paper, not to create an architectural work etc. A doctoral student must submit a doctoral dissertation with at least three published papers in academic journals in order to receive the doctoral degree. One of these papers may be in progress.

Our enrolled students have published articles in top journals such as Automation in Construction, Advanced

Engineering Informatics (Elsevier), etc. Can you do it?

Answer:

### Q13.

The entrance exam for the PhD program requires a 12-minute presentation and an 8-minute discussion, including a self-introduction, details of your master's research, and your doctoral research plan (content may vary). Will you be prepared? How are you preparing?

Answer:

### Q14.

Please prepare a research plan on **a single A4 sheet of paper**. Please be sure to include the following information:

1. What is the research problem to be addressed?
2. What is the research question?
3. What methodology will be used to answer the stated research question?
4. What results will be obtained?
5. What is the meaning and significance of these results?
6. What are the directions for further research?

As for the literature review, which is a very important task to find research gaps, I would suggest that you first read the papers that our research team has published in the past. Here are some of the titles listed in my Scopus:

<https://www.scopus.com/authid/detail.uri?authorId=58093701800>

First, please read some of these papers that interest you are interested in (you can prioritize them based on their titles and abstracts) to understand the research framework, the development kit used, and the technical terms used.

Then, in the Discussion and Conclusion chapters of these papers, you will find issues and limitations that were not realized in that paper, which will become a research gap in future research. It is easy to find novelty in your research if you aim to solve it anew. However, if the paper has been published for a long time, it is possible that other researchers have already done this research. You should approach a paper that has already been cited by other authors.

Zhang, J., Fukuda, T., Yabuki, N. (2022). Automatic generation of synthetic datasets from a city digital twin for use in the instance segmentation of building facades, *Journal of Computational Design and Engineering*, qwac086

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Li, Y., Yabuki, N., Fukuda, T. (2023). Integrating GIS, deep learning, and environmental sensors for multicriteria evaluation of urban street walkability, *Landscape and Urban Planning*, 230, 104603,

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Kikuchi, N., Fukuda, T., Yabuki, N. (2022). Future landscape visualization using a city digital twin: integration of augmented reality and drones with implementation of 3D model-based occlusion handling, *Journal of Computational Design and Engineering*, Volume 9, Issue 2, April 2022, Pages 837–856

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greenery using street view images and deep learning, *Urban Forestry & Urban Greening*, Volume 59, 126995, <https://doi.org/10.1016/j.ufug.2021.126995>

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Or you can find more papers published at:

<https://www.scopus.com/authid/detail.uri?authorId=58093701800>