

# Taisei Saida

## Ph.D Student in Engineering, University of Tsukuba

🌐 [profile.tsaida.net](https://profile.tsaida.net)   📄 [Google Scholar](#)   @ [saida.taisei.tj@alumni.tsukuba.ac.jp](mailto:saida.taisei.tj@alumni.tsukuba.ac.jp)  
📍 1-1-1 Tennodai, Tsukuba-shi, 305-8573, Ibaraki, Japan

### Education

<b>Current</b> <b>Apr. 2023</b>	<b>University of Tsukuba</b> Ph.D. in Engineering   <a href="#">Degree Program in Engineering Mechanics &amp; Energy</a>	<b>Ibaraki, Japan</b>
<b>Mar. 2023</b> <b>Apr. 2021</b>	<b>University of Tsukuba</b> Master in Engineering   <a href="#">Degree Program in Engineering Mechanics &amp; Energy</a>	<b>Ibaraki, Japan</b>
<b>Dec. 2021</b> <b>Apr. 2017</b>	<b>University of Tsukuba</b> Bachelor of Engineering   <a href="#">College of Engineering Systems</a>	<b>Ibaraki, Japan</b>

### Experience

<b>Mar. 2026</b> <b>Apr. 2024</b>	<b>JSPS Research Fellowship DC2</b> <i>Japan Society for the Promotion of Science</i>	<b>Japan</b>
<b>Sep. 2023</b> <b>Jun. 2023</b>	<b>Lawrence Livermore National Laboratories   Research Intern</b> [🌐] <i>Mentor: Dr. Aldair Ernesto Gongora</i>	<b>CA, US</b>
<b>Sep. 2021</b> <b>Sep. 2021</b>	<b>Research Intern</b> [🌐] Taisei Company Technology Center	<b>Kanagawa, Japan</b>
<b>Sep. 2021</b> <b>Aug. 2021</b>	<b>Research Intern</b> [🌐] NTT Access Network Service Systems Laboratories	<b>Ibaraki, Japan</b>
<b>Current</b> <b>Jun. 2021</b>	<b>Research Assistant</b> [🌐] AIS Lab in University of Tsukuba	<b>Ibaraki, Japan</b>
<b>Dec. 2022</b> <b>May. 2019</b>	<b>Research Assistant</b> [🌐] National Agriculture and Food Research Organization	<b>Ibaraki, Japan</b>

### Journal Papers

- [4] **TL-GPRSM: A python software for constructing transfer learning Gaussian process regression surrogate model with explainability** [doi]  
[Taisei Saida](#), Mayuko Nishio  
*Software Impacts*. 2023; 16; 100515. (2022 IF = 2.1) [ELSEVIER SIMPA'23]
- [3] **Transfer learning Gaussian process regression surrogate model with explainability for structural reliability analysis under variation in uncertainties** [doi]  
[Taisei Saida](#), Mayuko Nishio  
*Computers & Structures*. 2023; 281; 107014. (2021 IF = 5.372) [ELSEVIER CAS'23]
- [2] **CNN-based segmentation frameworks for structural component and earthquake damage determinations using UAV images** [doi]  
[Taisei Saida](#), Muhammad Rashid, Yudai Nemoto, Shota Tsukamoto, Takehiko Asai, Mayuko Nishio  
*Earthquake Engineering and Engineering Vibration*. 2023; 22(2); 359-369. (2021 IF = 2.810) [SPRINGER EEEV'23]
- [1] **CONSTRUCTION OF GAUSSIAN PROCESS REGRESSION SURROGATE MODEL FOR NONLINEAR SEISMIC RESPONSE ANALYSIS USING ARD KERNEL (in Japanese)** [doi]  
[Taisei Saida](#), Mayuko Nishio  
*Journal of Japan Society of Civil Engineers, Ser. A2 (Applied Mechanics (AM))*. 2021; 77(2);I\_93-I\_104. [JSCE AM'21]

## Conference Papers

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- [3] **Gaussian Process Regression Surrogate Model for Seismic Vulnerability Assessment of Highway Bridge Structure System** [\[doi\]](#)  
Taisei Saida, Muhammad Rashid, Mayuko Nishio  
*Proc. EVACES. 2023; 433; 520-529.* [EVACES'23]
- [2] **Digital twin framework for real-time dynamic analysis visualization with detecting dynamic changes in structures properties using PINN** [\[doi\]](#)  
Toko Okuda, Taisei Saida, Mayuko Nishio  
*Proc. SPIE. 2023; 12486; 1248616.* [SPIE'23]
- [1] **Gaussian process regression surrogate model for dynamic analysis to account for uncertainties in seismic loading** [\[doi\]](#)  
Taisei Saida, Mayuko Nishio  
*Proc. SPIE. 2023; 12486; 1248610.* [SPIE'23]

## Awards

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- [3] **Meikeikai Awards** [\[🌐\]](#)  
This award is given to those who have done outstanding research.  
*Meikeikai in University of Tsukuba, 2023.*
- [2] **Honorable Mention** [\[🌐\]](#)  
The 2nd International Competition for Structural Health Monitoring  
*ANCRiSST, 2022.*
- [1] **Applied Mechanics Presentation Award** [\[🌐\]](#)  
The 24th Symposium on Applied Mechanics  
*Japan Society of Civil Engineers, 2021.*

## Grants

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- [3] **Research Fellowship for Young Scientists (DC2)** [\[🌐\]](#)  
2024-2026, 200,000 JPY/m and 1,600,000 JPY  
*Japan Society for the Promotion of Science*
- [2] **SPRING : Support for Pioneering Research Initiated by the Next Generation Home** [\[🌐\]](#)  
2023-2026, 200,000 JPY/m and 1,500,000 JPY  
*Japan Science and Technology Agency*
- [1] **JASSO Scholarship for Top 10% Excellent Master Students** [\[🌐\]](#)  
2023, 2,112,000 JPY  
*Japan Student Services Organization*

## International Conferences

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- [4] **Gaussian Process Regression Surrogate Model for Seismic Vulnerability Assessment of Highway Bridge Structure System** [\[doi\]](#)  
Taisei Saida, Muhammad Rashid, Mayuko Nishio  
*10th International Conference on Experimental Vibration Analysis for Civil Engineering Structures* [EVACES'23]
- [3] **Gaussian process regression surrogate model for dynamic analysis to account for uncertainties in seismic loading** [\[doi\]](#)  
Taisei Saida, Mayuko Nishio  
*SPIE Smart Structures + NDE 2023* [SPIE'23]
- [2] **Digital twin framework for real-time dynamic analysis visualization with detecting dynamic changes in structures properties using PINN** [\[doi\]](#)  
Toko Okuda, Taisei Saida, Mayuko Nishio  
*SPIE Smart Structures + NDE 2023* [SPIE'23]
- [1] **Gaussian Process Regression Surrogate Modeling with Transfer Learning for Low Computational Cost Structural Reliability Analysis**  
Taisei Saida, Mayuko Nishio  
*15th World Congress on Computational Mechanics & 8th Asian Pacific Congress on Computational Mechanics* [WCCM'22]

## Domestic Conferences

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- [11] 深層カーネル学習代替モデルによる高架橋システムの地震フラジリティ解析  
才田 大聖, Muhammad Rashid, 西尾 真由子  
第 10 回構造物の安全性・信頼性に関する国内シンポジウム, 2023.
- [10] [招待講演] 橋梁の地震フラジリティ解析効率化のためのガウス過程回帰代替モデル構築  
才田 大聖  
JSCES 夏季学生講演会 2023, 2023.
- [9] [招待講演] 高次元不確定性を扱う構造信頼性解析を効率化するガウス過程ベース代替モデル構築  
才田 大聖  
計算工学会 マルチメソッド・新数値解析手法開拓研究会 第 5 回研究会, 2023.
- [8] PINN 構造振動解析の AR によるリアルタイム可視化  
奥田 東子, 才田 大聖, 的野 玄, 西尾 真由子  
第 28 回計算工学講演会, 2023.
- [7] SPH 法に基づく微分演算を内包した深層学習による粒子法代替モデルの説明性向上  
的野 玄, 才田 大聖, 西尾 真由子  
第 28 回計算工学講演会, 2023.
- [6] 深層カーネル学習サロゲートモデルによる高次元不確定性をもつ構造信頼性解析の効率化  
才田 大聖, Muhammad Rashid, 西尾 真由子  
第 28 回計算工学講演会, 2023.
- [5] 地震荷重特徴抽出を備えた深層カーネル学習代替モデルによる地震リスク解析の効率化（シンポジウム講演概要）  
才田 大聖, 西尾 真由子  
第 26 回応用力学シンポジウム, 2023.
- [4] 転移学習ガウス過程回帰代替モデルによる構造性能解析の計算負荷低減  
才田 大聖, 西尾 真由子  
令和 5 年度土木学会全国大会 第 78 回年次学術講演会, 2022.
- [3] 転移学習ガウス過程回帰サロゲートモデルによる構造性能解析の計算負荷低減  
才田 大聖, 西尾 真由子  
第 27 回計算工学講演会, 2022.
- [2] ARD カーネルによる非線形地震応答解析のガウス過程回帰代替モデル構築  
才田 大聖, 西尾 真由子  
第 26 回計算工学講演会, 2021.
- [1] ARD カーネルによる非線形地震応答解析のガウス過程回帰代替モデル構築  
才田 大聖, 西尾 真由子  
第 24 回応用力学シンポジウム, 2021.

## Peer Reviews

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2023

RELIABILITY ENGINEERING & SYSTEM SAFETY | 2 papers