💌 jtd33@cam.ac.uk 📔 🏶 www.joshuadimasaka.com 📔 🖬 dimas	saka
Education	
University of Cambridge, Department of Architecture	Cambridge, UK
<ul> <li>PHD ARTIFICIAL INTELLIGENCE FOR THE STUDY OF ENVIRONMENTAL RISKS</li> <li>Research: Global Disaster Risk Quantification Audit using Artificial Intelligence and Earth O</li> <li>Advisor: Dr. Emily So &amp; Dr. Christian Geiß</li> </ul>	<i>Oct 2023 - Sep 2026 (Expected)</i> bservation Data
University of Cambridge, Department of Earth Sciences	Cambridge, UK
MRes Environmental Data Science	Oct 2022 - Sep 2023
<ul> <li>Research: Enhancing Assessment of Exposure of Settlement-transportation Systems by Int</li> <li>Advisor: Dr. Andrea Marinoni &amp; Dr. Sivasakthy Selvakumaran</li> </ul>	ergraph Representation Learning
Stanford University, School of Humanities and Sciences	Stanford, CA, US
MA PUBLIC POLICY	Mar 2021 - June 2022
<ul> <li>Research: Towards an Equitable Development of the Regional Earthquake Resilience of the</li> <li>Advisor: Dr. Jack Baker</li> </ul>	e Metropolitan Manila, Philippines
Stanford University, School of Engineering	Stanford, CA, US
MS Civil & Environmental Engineering	Sep 2019 - June 2022
<ul> <li>Research: Bayesian Updating of Seismic Ground Failure Estimations via Causal Graphical N</li> <li>Advisors: Dr. Hae Young Noh, Dr. Susu Xu, and Dr. David Wald (USGS)</li> </ul>	Models with Satellite Imagery
Stanford University, Graduate School of Business	Stanford, CA, US
Executive Education Ignite Certificate, Entrepreneurship and Innovation	Jan - Mar 2021
• Workshops: Market Segmentation, Design Thinking, Financial Analysis, Business Model, Go-to-Market Strategy, Pitching	
University of the Philippines Los Baños	Laguna, Philippines
BS Civil Engineering (Rank 1/341, Magna Cum Laude, Completed one semester early)	Jun 2013 - Jan 2018
<ul> <li>Research: Low-Frequency Impedance Spectroscopy of Cement Paste Matrix Admixed with</li> <li>Advisors: Dr. Marish Madlangbayan and Dr. Alvin Karlo Tapia</li> </ul>	Nanosilica
Tokyo Metropolitan University	Tokyo, Japan
<b>EXCHANGE PROGRAM CERTIFICATE, INTEGRATED RIVER ENGINEERING WORK</b> • Workshops: Advanced Technique on Flood Control, Water Supply, and Aquatic Environme	Oct - Nov 2017 nt for Megacity

Joshua Dimasaka

# Professional Experience \_

Oct 2023 - Present Geospatial AI & Disaster Risk Researcher, Cambridge Centre for Risk in the Built Environment Synthesizing various global time-series exposure datasets and local census-based information to assess the dynamics of disaster (e.g., earthquakes, typhoons, flooding) risk using machine learning.

- Jul Sep 2024Helmholtz Al Researcher, Earth Observation Center, German Aerospace CenterDeveloped a novel methodology that constrains the machine-learning outputs with censusinformation and conditional relationships from expert belief systems for mapping building exposureand physical vulnerability.
- Mar Aug 2022Urban Resilience Research Fellow, EMI, an International Scientific NGO, PhilippinesDeveloped risk assessment tools using MATLAB to analyze 400,000 buildings and 3.2-millionpopulation subjected to the "Big One" Mw-7.2 earthquake of the Marikina West Valley Fault System.
- Dec 2021 May 2022Public Policy Graduate Researcher, Stanford Public Policy Program, USDesigned city-wide GIS maps and wrote MATLAB modules to calculate economic, space, and social<br/>losses of 23 cities with 1.14 million buildings using an OpenQuake-run probabilistic hazard analysis.

# Professional Experience (Continued) \_

Mar 2021 - Mar 2022	<b>Earthquake Risk &amp; Loss Consulting Assistant</b> , Stanford Land, Buildings, and Real Estate, US Analyzed the financial losses and business interruption of 750 buildings subjected to large earthquakes (up to Mw-7.6) and designed a Tableau dashboard for stakeholders' use.
Jun - Sep 2021	<b>Structures &amp; Natural Hazards Research Intern,</b> FM Global, Engineering & Research Group, US Improved the firm's library of seismic design hazard and maps by more than 246%, starting with 130 and ending with 320 maps (or 190 new maps) from over 130 countries and territories.
Jun 2020 - Jun 2021	<b>Geospatial &amp; Machine Learning Graduate Researcher</b> , Stanford Noh Research Group, US Wrote MATLAB modules to apply Bayesian causal inference that uses satellite imagery to improve the landslide, liquefaction, and building damage models for global earthquake loss estimation.
Jul 2018 - Jul 2019	<b>Graduate Structural Design Engineer</b> , Arup, Buildings Department, Philippines Post-earthquake and safety assessment of a tall building with 50 floors. Performance-based design peer review of two buildings with 41 and 43 floors and four basements. Code-based design peer reviews of three tall buildings with 43-49 floors and four basements each. Liquefaction susceptibility assessment of a three-tower building in a reclamation area.
May - Jul 2017	<b>Planning and Control Engineering Intern</b> , Makati Development Corporation, Philippines Improved the operations of the Project Planning & Control Office by designing an Excel-VBA program to monitor the deliverables of over 100 national projects with real-time technical report status.

## Journal Publications \_

- **Dimasaka, J.**, Selvakumaran, S., & Marinoni, A. (2024). Enhancing assessment of direct and indirect exposure of settlementtransportation systems to mass movements by intergraph representation learning. *Environmental Research Letters, Focus on Natural Hazards, Disasters, and Extreme Events* **19**, 114055
- Xu, S., **Dimasaka, J.**, Wald, D., & Noh, H.Y. (2022). Seismic multi-hazard and impact estimation via causal inference from satellite imagery. *Nature Communications* **13**, 7793.
- Dimasaka, J., Peralta, E.K., Peralta, M.M., Tapia, A.G., & Madlangbayan, M.S. (2017). Effect of nano-SiO2 from rice hull ash on the conductivity of cement paste. *Emerging Materials Research*, 7(3): 164-168.

### Technical Reports \_\_\_\_\_

- Xu, S., Zhao, X., Li, X., **Dimasaka, J.**, Zhang, X., Yu, X., Wang, C. Hu, X., and Noh, H.Y. (2023). M7.8 Turkey-Syria Earthquake Impact Estimates from Near-real-time Crowdsourced and Remote Sensing Data.
- Earthquakes and Megacities Initiative (2022). Risk Profile Atlas (RPA) and Hazard, Vulnerability and Risk Assessment (HVRA) of Quezon City Government, Philippines. (Contributor on Earthquake Risk)

### Invited Talks\_\_\_\_\_

- Summer 2024. Near-real-time Country-wide Estimation of Susceptibility and Settlement Exposure from Norwegian Mass Movements via Intergraph Representation Learning. Innovations Group WG5 of LandAware, an international network on early warning systems, Online.
- Summer 2023. *Computing in Civil Engineering*. University of the Philippines Los Baños, Department of Civil Engineering, Laguna, Philippines.
- Spring 2023. Mapping Global Disaster Risk using AI and Earth Observation Data: Examples from Climate-Induced Mass Movement and Seismic Multi-Hazard Impact Assessment. Moody's Risk Management Solutions - Model Development Team, London, UK.

## Selected Conference Presentations\_

- **Dimasaka, J.**, Geiß, C., and So, E. (2024). Deep Conditional Census-Constrained Clustering (DeepC4) for Large-scale Multitask Disaggregation of Urban Morphology. Advancing Building and Population Inventories to Support Equity and Inclusion. American Geophysical Union Annual Meeting 2024, Washington, D.C., United States.
- **Dimasaka, J.**, Geiß, C., and So, E. (2024). Global Mapping of Exposure and Physical Vulnerability Dynamics in Least Developed Countries using Remote Sensing and Machine Learning. Poster Presentation at Machine Learning for Remote Sensing Workshop. International Conference on Learning Representations 2024, Vienna, Austria.
- McDonald, A., **Dimasaka, J.**, Plumridge, M., Torry, J., Zúñiga Gonzales, A.C, van Zeeland, L., Rogers, M., and Hosking, S. (2023). Classifying Sea Ice in High-Resolution SAR Imagery Using Deep Learning. European Geosciences Union General Assembly Conference, Vienna, Austria.
- Wald, D., Xu, S., Noh, H., Dimasaka, J., Jaiswal, K., Allstadt, K., and Engler, D. (2022). Integrated Strategies for Enhanced Rapid Earthquake Shaking, Ground Failure, and Impact Estimation Employing Remotely Sensed and Ground Truth Constraints. 12th National Conference on Earthquake Engineering, Topic Session on Novel Post-Earthquake Assessment Analysis and Modeling Techniques, Salt Lake City, Utah, United States.
- Xu, S., **Dimasaka, J.**, Wald, D., and Noh, H. (2022). Bayesian Updating of Seismic Ground Failure Estimations via Causal Graphical Models with Satellite Imagery. 17th World Conference on Earthquake Engineering, Sendai, Japan.
- **Dimasaka, J.**, Xu, S., Wald, D., and Noh, H. (2021). Improving Post-earthquake Disaster Response using Bayesian-Updated Ground Failure Models with Satellite Imagery. 20th Association of Structural Engineers of the Philippines (ASEP) International Convention, Philippines.

#### Awards, Fellowships, & Grants \_\_\_\_\_

2024	Helmholtz Visiting Researcher Grant, Helmholtz Information & Data Science Academy	€ 13,040
2022-2026	UKRI CDT Studentship, Engineering & Physical Sciences Research Council Departmental Award, Department of Earth Sciences, AI4ER, University of Cambridge	£ 106,000 £ 106,000
2019-2022	Knight-Hennessy Graduate Fellowship, Stanford University	\$ 240,000
2018	International Publication Award, Office of the Vice President for Academic Affairs, University of the Philippines	
2018	BPI-DOST Science Awards, BPI Foundation and the Department of Science and Technology	
2018	UPLB CEAT Academic Excellence Award, University of the Philippines	
2017	<b>First Prize, Best Scientific Oral Presentation at ASEAN-CAFMN</b> , Philippine Council for Industry, Energy, and Emerging Technology Research & Development	₱ 15,000
2017	<b>Third Place, Most Outstanding Civil Engineering Students (MOCES) National Award</b> , Philippine Institute of Civil Engineers	
2013-2017	DOST RA 7687 Undergraduate Scholarship, Science Education Institute RSFI Undergraduate Scholarship, Ramar Foods International	₱347,000 ₱200,000