JOSHUA DIMASAKA

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EDUCATION

University of Cambridge — United Kingdom
- PhD Artificial Intelligence for the study of Environmental Risks — 2023-26
  - *Dissertation: Global Disaster Risk Quantification Audit using AI and Earth Observation Data*
  - *Advisor: E. So (UCam), C. Geiß (DLR), R. Muir-Wood (Moody's RMS), F. Bendimerad (EMI)*
- MRes Environmental Data Science — 2022-23
  - *Research: Exposure Assessment of Settlement-Road Systems from Climate-influenced Mass Movements*
  - *Advisor: A. Marinoni (UiT), S. Selvakumaran (UCam)*

Stanford University — United States
- MA Public Policy — 2020-22
  - *Research: Regional Earthquake Risk Assessment of the Greater Metro Manila Area, Philippines*
  - *Advisor: J. Baker (Stanford)*
- MS Civil & Environmental Engineering, Sustainable Design & Construction (Structures) — 2019-22
  - *Research: Landslide, Liquefaction, and Building Damage via Causal Inference from Satellite Imagery*
  - *Advisor: H. Y. Noh (Stanford), S. Xu (Johns Hopkins), D. Wald (USGS)*
- Exec. Educ. Ignite Certificate, Entrepreneurship & Innovation, Grad School of Business — 2021
- Knight-Hennessy Graduate Fellow — 2019-22

University of the Philippines Los Baños — Philippines
- BS Civil Engineering, *magna cum laude, college valedictorian, rank 1/341* — 2018

PROFESSIONAL APPOINTMENTS

Apr - Jun 2026	**Guest Scientist, Digitial GreenTalents,** *German Aerospace Center, DE*
Oct 2022 - present	**Postgraduate Researcher**, *University of Cambridge, UK*
Jul - Sep 2024	**Guest Scientist, Helmholtz AI**, *German Aerospace Center, DE*
Mar - Aug 2022	**Urban Resilience Fellow**, *Earthquakes and Megacities Initiative, PH*
Dec 2021 - May 2022	**Public Policy MA Researcher**, *Stanford University, US*
Mar 2021 - Mar 2022	**Earthquake Risk Consultant**, *Stanford University, US*
Jun - Sep 2021	**Structures & Natural Hazards Researcher**, *FM Global, US*
Jun 2020 - Jun 2021	**Geospatial & Machine Learning MS Researcher**, *Stanford University, US*
Jul 2018 - Jul 2019	**Structural Design Engineer,** *Arup, PH*
May - Jul 2017	**Planning & Control Engineering Intern,** *Ayala Group (MDC), PH*

PEER-REVIEWED PUBLICATIONS

[P-1] **Dimasaka, J.**, Geiß, C., and So. E. (2026). **GraphVSSM**: **G**raph **V**ariational **S**tate-**S**pace **M**odel for Probabilistic Spatiotemporal Inference of Dynamic Exposure and Vulnerability for Regional Disaster Resilience Assessment. In *Proceedings of the Special Track on AI for Social Impact at the 40th AAAI Conference of Artificial Intelligence*. (Accepted).
Code: github.com/riskaudit/GraphVSSM

[P-2] **Dimasaka, J.,** Geiss, C., Muir-Wood, R., and So, E. (2026). **GraphCSVAE**: **G**raph **C**ategorical **S**tructured **V**ariational **A**uto**e**ncoder for Spatiotemporal Auditing of Physical Vulnerability Towards Sustainable Post-Disaster Risk Reduction. *Progress in Disaster Science, Special Issue on AI, Emerging Technologies, and Immersive Solutions for Disaster & Emergency Response* (invited).
Award: Best Overall Conference Paper, 8th Int'l Disaster & Risk Conference (IDRC)
Code: github.com/riskaudit/GraphCSVAE

[P-3] **Dimasaka, J.**, Geiß, C., and So. E. (2026). **DeepC4**: **Deep** **C**onditional **C**ensus-**C**onstrained **C**lustering for Large-scale Multitask Disaggregation of Urban Morphology. *ISPRS Journal of Photogrammetry and Remote Sensing, Special Issue on Interpretability and Explainability in GeoAI for Geospatial Science and Earth Observations* (in review).
Code: github.com/riskaudit/DeepC4

[P-4] **Dimasaka, J.,** Selvakumaran, S., and Marinoni, A. (2024). Enhancing Assessment of Direct and Indirect Exposure of Settlement-Transportation Systems to Mass Movements by Intergraph Representation Learning. *Environmental Research Letters, Focus Collection on Natural Hazards, Disasters, and Extreme Events, 19*(11), 114055.
Award: Outstanding Student Presentation Award (OSPA), AGU Annual Meeting 2023
Code: github.com/IMPACTSquad/InterGraphNorwayMM

[P-5] Xu, S., **Dimasaka, J.,** Wald, D., and Noh, H.Y. (2022). Seismic Multi-hazard and Impact Estimation via Causal Inference from Satellite Imagery. *Nature Communications, 13*(1), 7793.
Code: github.com/SusuXu/VBCI

[P-6]

MANUSCRIPTS IN PREPARATION

[M-1] **Dimasaka, J.**, Geiß, C., and So. E. (2026). **METEOR 2.5D**: Tracking Physical Vulnerability and Disaster Risk Across the 47 UN-Designated Least Developed Countries as of 2020, 1975-2030. *(Target Journal: Nature Sustainability).*

[M-2] **Dimasaka, J.**, Geiß, C., and So. E. (2026). Spatiotemporal Mapping of the Annual Earthquake and Flood Risk of Quezon City, Philippines. *(Target Journal: Nature Communications)*

CONFERENCE PRESENTATIONS

[C-1] A Data-Driven Probabilistic Approach to Regional Dynamics of Building Exposure and Physical Vulnerability Towards Global Disaster Risk Quantification Audit. *AGU Annual Meeting 2025,* United States, Dec 16, 2025.

[C-2] Modernizing Quezon City's Building Risk Data with AI and Earth Observation. *20th Assoc. of Pacific Rim Universities - Multi-Hazards Conference & Symposium*, Philippines, Nov 28, 2025.

[C-3] Spatial Disaggregation of Rwandan Building Exposure and Vulnerability via Weakly Supervised Conditional Census-Constrained Clustering (C4) using Earth Observation Data. *AGU Annual Meeting 2024*, United States, Dec 10, 2024.

[C-4] Global Mapping of Exposure & Physical Vulnerability Dynamics in Least Developed Countries using Remote Sensing & Machine Learning. *12th Int'l Conference on Learning Representation (ICLR), 2nd Machine Learning for Remote Sensing Workshop*, Austria, May 11, 2024.

[C-5] Near-real-time Country-wide Estimation of Susceptibility and Settlement Exposure from Norwegian Mass Movements via Inter-graph Representation Learning. *AGU Annual Meeting 2023*, United States, Dec 14, 2023.

[C-6] Improving Post-earthquake Disaster Response using Bayesian-Updated Ground Failure Models with Satellite Imagery. *20th Assoc. of Structural Engineers of the Philippines (ASEP) International Convention*, Philippines, May 21, 2021.

INVITED TALKS

[I-1] 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 int'l network on early warning systems,* Online, Jun 25, 2024.

[I-2] Computing in Civil Eng'g. *University of the Philippines Los Baños*, PH, Sep 29, 2023.

[I-3] Mapping Global Disaster Risk using AI and Earth Observation Data: Examples from Climate-Induced Mass Movements and Seismic Multi-Hazard Impact Assessment. *Moody's Risk Management Solutions – Model Development Team*, London, UK, Jun 21, 2023.

TECHNICAL REPORTS

[T-1] Tanhueco, R.M., Bendimerad, F., Khazai, B., Tibig, L., **Dimasaka, J.**, and Luzon, P.K. (2022). Climate and Disaster Risk Assessment Report for Quezon City: Climate Change, Earthquake, Flood, and Landslide Hazards, including Identification of Hotspot Barangays. Quezon City Government and Earthquakes & Megacities Initiative.

[T-2] Bendimerad, F., Canney, N., and **Dimasaka, J.** (2021). Seismic Risk and Loss Estimation of Stanford University Buildings.

OPEN-SOURCE DATA INITIATIVES

[O-1] METEOR 2.5D: An Open Geospatial Dataset of Spatiotemporal Evolution of Physical Vulnerability in UN-recognized Least Developed Countries (as of 2020) at Five-year Intervals, 1975-2030. ***doi.org/10.5281/zenodo.16608380*** | ***doi.org/10.5281/zenodo.16695059***

[O-2] A Local-Scale Dataset of Annual Spatiotemporal Maps of Physical Vulnerability in the Cyclone-Impacted Coastal Khurushkul Community (Bangladesh) and Mudslide-Affected Freetown (Sierra Leone) (2016–2023). ***doi.org/10.5281/zenodo.16656471***

[O-3] A City-Scale Dataset of Annual Spatiotemporal Maps of Building Exposure and Physical Vulnerability in Quezon City, Philippines (2016–2030). ***doi.org/10.5281/zenodo.16655873***

[O-4] OpenSendaiBench: A Benchmark Dataset of Building Exposure and Vulnerability Dynamics for EO-based Auditing of Global Disaster Risk. ***doi.org/10.5281/zenodo.10840484***

VOLUNTEERING

2025	Reviewer, *AAAI Special Track on AI for Social Impact & AI for Urban Planning Workshop*
	Reviewer, *Updated UNDRR-International Science Council Hazard Information Profiles*
2024	Reviewer, *American Geophysical Union Annual Meeting 2024, OSPA*
	Reviewer, *GeoAI for a Sustainable Future in Africa Workshop*
	Reviewer, *Cambridge Journal of Science and Policy*
	Exhibitor, *Cambridge Festival*
2023	Reviewer, *American Geophysical Union Annual Meeting 2023, OSPA*
	Participant, *Joint Workshop of Disaster Research Group & UK Alliance for Disaster Research*
2022	Reviewer, *Intersect: The Stanford Journal of Science, Technology, and Society*
2020	Fellow, *New Story Charity (Affordable Housing Solutions)*
2017	Lead Organizer, *12th Engineering Congress (Philippine, National)*
2014-22	Lead Coordinator and Interviewer, *Ramar Scholarship Foundation for Low-Income Students*

RECOGNITIONS

2025	Digital GreenTalents, *Federal Ministry of Research, Technology & Space, DE*	€	5,850
2025	Best Overall Paper Conference, *8th Int'l Disaster & Risk Conference, CY*		
2024	Helmholtz Visiting Researcher Grant, *Helmholtz Association, DE*	€	13,040
2023	Outstanding Student Presentation Award, *American Geophysical Union, US*		
2022-26	UKRI CDT Studentship, *Eng'g & Physical Sciences Research Council, UK*	£	106,000
	Departmental Award, *Earth Sciences, University of Cambridge, UK*	£	106,000
2019-22	Knight-Hennessy Graduate Fellowship, *Stanford University, US*	$	240,000
2018	Int'l Publication Award, *University of the Philippines, PH*		
2018	BPI-DOST Science Award, *BPI Foundation and Dept of Science & Tech, PH*		
2017	Best Scientific Oral Presentation, *ASEAN-CAFMN, PH*		
2017	3rd Place, Most Outstanding Civil Eng'g Student National Award, *PICE, PH*		
2013-17	DOST RA 7687 & RSFI Undergraduate Scholarships, *PH*	₱	547,000