

Submitted

1. Cotoarbă D., Straub D., Smith IFC: Probabilistic Digital Twins for Geotechnical Design and Assessment. *Advanced Engineering Informatics*, under review.
2. Papaioannou I., Straub D.: FORM-based global reliability sensitivity analysis of systems with multiple failure modes. *Reliability Engineering & System Safety*, under review.
3. Rosero-Velásquez H., Monsalve M., Gómez Zapata J.C., Ferrario E., Poulos A., de la Llera J.C., Straub D.: Risk-informed representative earthquake scenarios for the Valparaíso region of Chile. *Natural Hazards and Earth System Sciences*, under review.
4. Chan J, Papaioannou I., Straub D.: Bayesian improved cross entropy method with categorical mixture models, *Reliability Engineering & System Safety*, under review.
5. Kamariotis A., Chatzi E., Straub D., Dervilis N., Goebel K., Hughes A.J., Lombaert G., Papadimitriou C, Papakonstantinou K.G., Pozzi M., Todd M., Worden K.: Monitoring-Supported Value Generation for Managing Structures and Infrastructure Systems, *Data-Centric Engineering*, under review.
6. Arcieria G., Hoelzl C., Schwery O., Straub D., Papakonstantinou K.G., Chatzi E.: POMDP inference and robust solution via deep reinforcement learning: An application to railway optimal maintenance. *Machine Learning*, under review.
7. Chan J, Paredes R., Papaioannou I., Duenas-Osorio L., Straub D.: Adaptive Monte Carlo methods for estimating rare events in power grids. *IEEE Transactions on Power Systems*, under review.
8. Ellingwood B., Maes M., Bartlett F.M., Beck A.T., Caprani C.; Der Kiureghian A., Duenas-Osorio L., Galvao N., Gilbert R.B., Li J., Matos J., Mori Y., Papaioannou I., Parades R., Straub D., Sudret B.: Development of methods of structural reliability. *Structural Safety*, under review.
9. Vrouwenvelder T., Beck A., Proske D., Faber M.H., Köhler J., Schubert M., Straub D., Teichgräber M.: On the Notion of Structural Safety – the Philosophical Conundrum. *Structural Safety*, under review.
10. Cotoarbă D., Straub D., Smith I. (2024). Incorporating Uncertainties into Digital Twins: The Example of Geotechnical Engineering. *Proc. ASCE International Conference on Computing in Civil Engineering (i3CE 2024)*, Carnegie Mellon, Pittsburgh, PA.

Books edited

1. Klüppelberg C., Straub D., Welpe I. (eds.) (2014): *Risk - A Multidisciplinary Introduction*. Springer. ISBN: 978-3-319-04485-9.
2. Vogt N., Schuppener B., Straub D., Bräu G. (eds.), (2011). *Geotechnical Risk and Safety*. Bundesanstalt für Wasserbau. ISBN: 978-3-939230-01-4.
3. Straub D. (ed.), (2010). *Reliability and Optimization of Structural Systems*. CRC Press, Taylor and Francis Group, London, UK. ISBN: 978-0-415-88179-1.

Book chapters

1. Straub D., Papaioannou I. (2015): Bayesian analysis for learning and updating geotechnical parameters and models with measurements. Chapter 5 in: *Risk and Reliability in Geotechnical Engineering* (eds. Phoon K.-K., Ching J.), CRC Press.
2. Straub D., Welpe I. (2014): Decision-making under risk: a normative and behavioral perspective. Chapter 3 in: *Risk - A Multidisciplinary Introduction* (eds. Klüppelberg C., Straub D., Welpe I.), Springer.
3. Straub D. (2014): Engineering Risk Assessment. Chapter 12 in: *Risk - A Multidisciplinary Introduction* (eds. Klüppelberg C., Straub D., Welpe I.), Springer.

Lecture notes for courses at TUM

1. Straub D. (2021). *Stochastik und Risiko – Eine Einführung für Ingenieure*, 281 pages
2. Straub D. (2020). *Lecture Notes in Engineering Risk Analysis*, 475 pages
3. Straub D. (2014). *Lecture Notes in Structural Reliability*, 97 pages
4. Straub D. (2013). *Zuverlässigkeit und Lastannahmen*, 181 pages
5. Straub D. (2012). *Einführung ins Risikomanagement für Umweltingenieure*, 135 pages.

Referred journal publications

1. Bismut E., Cotoarba D., Spross J., Straub D.: Optimal adaptive decision rules in geotechnical construction considering uncertainty. *Geotechnique*, in print.
2. Zwirglmaier K., Chan J., Papaioannou I., Song J., Straub D.: Hybrid Bayesian Networks for Reliability Assessment of Infrastructure Systems, *ASCE-ASME Journal of Risk and Uncertainty Analysis, Part A*, in print.
3. Koutas D., Bismut E., Straub D.: An investigation of belief-free DRL and MCTS for inspection and maintenance planning. *Journal of Infrastructure Preservation and Resilience*, in print.
4. Maljaars J., Leander J., Nussbaumer A., Sørensen J.D., Straub D.: Models and methods for probabilistic safety assessment of steel structures subject to fatigue. *Structural Safety*, in print.
5. Li L., Papaioannou I., Straub D.: Efficient global sensitivity analysis method for dynamic models in high dimensions. *International Journal for Numerical Methods in Engineering*, in print.
6. Kryda M., Berk M., Qiu M., Buschardt B., Straub D.: Redundant sensor-based perception sensor reliability estimation from field tests without reference truth. *SAE International Journal of Transportation Safety*, in print.
7. Sánchez-Silva M., Gardoni P., Val D.V., Yang D.Y., Frangopol D.M., Limongelli M.P., Honfi D., Acuña N., Straub D. (2024). Moving toward resilience and sustainability in the built environment. *Structural Safety*, in print.
8. Ehre M., Papaioannou I., Straub D. (2024). Variance-based reliability sensitivity under dependent input measures using failure samples. *Structural Safety*, **106**: 102396.
9. Kamariotis A., Tatsis K., Chatzi E., Goebel K., Straub D. (2024). A metric for assessing and optimizing data-driven prognostic algorithms for predictive maintenance. *Reliability Engineering & System Safety*, **242**: 109723.
10. Geyer S., Papaioannou I., Straub D. (2023). Spatial modeling of concrete strength based on data, *Structural Safety*, **103**: 102345.
11. Teichgräber M., Fusseder M., Bletzinger K., Straub D. (2023). Non-linear structural models and the partial safety factor concept. *Structural Safety*, **103**: 102341.
12. Georgiadis D.G., Samuelides E.S., Straub D. (2023). A Bayesian analysis for the quantification of strength model uncertainty factor of ship structures in ultimate limit state. *Marine Structures*, **92**: 103495.
13. Kamariotis A., Sardi L., Papaioannou I., Chatzi E., Straub D. (2023). On off-line and on-line Bayesian filtering for uncertainty quantification of structural deterioration. *Data-Centric Engineering*, **4**: e17
14. Chan J., Papaioannou I., Straub D. (2023). Bayesian improved cross entropy method for network reliability assessment. *Structural Safety*, **103**: 102344.
15. Ehre M., Flock R., Papaioannou I., Straub D. (2023). Certified Dimension Reduction for Bayesian Updating with the Cross-Entropy Method. *SIAM Journal of Uncertainty Quantification*, **11**(1): 358-388.
16. Kamariotis A., Chatzi E., Straub D. (2023). A framework for quantifying the value of vibration-based structural health monitoring. *Mechanical Systems and Signal Processing*, **184**(1): 109708.

17. Engel M., Kanjilal O., Papaioannou I., Straub D. (2023). Bayesian updating and marginal likelihood estimation by cross entropy based importance sampling. *Journal of Computational Physics*, **473**: 111746.
18. Lopez R.H., Bismut E., Straub D. (2023). Stochastic efficient global optimization with high noise variance and mixed design variables. *Journal of the Brazilian Society of Mechanical Sciences and Engineering*, **45**: 7.
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27. Geyer S., Papaioannou I., Graham-Brady L., Straub D. (2022). The spatial averaging method for non-homogeneous random fields with application to reliability analysis. *Engineering Structures*, **253**: 113761.
28. Wagner P.-R., Papaioannou I., Marelli S., Straub D., Sudret B. (2022). Rare event estimation using stochastic spectral embedding, *Structural Safety*, **96**: 102179.
29. Kamariotis A., Chatzi E., Straub D. (2022). Value of information from vibration-based structural health monitoring extracted via Bayesian model updating. *Mechanical Systems and Signal Processing*, **166**: 108465
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