Johannes Flotzinger, M.Eng.

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🌐 https://jfltzngr.github.io/

Employment History

2020 – present   🔖 **PhD Candidate** Institute for Structural Engineering, University of the Bundeswehr Munich, Germany. Lectures: Bridge construction, Fire protection; Research: Automating visual defect recognition on infrastructure (e.g., road and railway bridges, wind turbines, power plants).

🔖 **Freelance Structural Engineer** for bridges, nail walls and wallings.

2019 – 2020   🔖 **PhD Student** Institute for Building Materials, OTH Regensburg, Germany. Lectures: Building Materials, Building Repairs, Structural Defects, Engineering Mechanics; Research: Rheology, durability and sustainability of self-compacting and sprayed concrete.

2018 – 2019   🔖 **Student Trainee** DYWIDAG-Systems International (DSI), France. Bridge restoration.

2017   🔖 **Intern** Interspan, UK. Structural design of prestressed flat slabs.

2014   🔖 **Intern** Max Bögl, Germany. Construction of power plants.

Education

2016 – 2019   🔖 **M.Eng. Civil Engineering, OTH Regensburg** in Building and Infrastructure Rehabilitation.
Thesis title: *Comparison of self-compacting concrete with its equivalent mortar.*

2012 – 2016   🔖 **B.Eng. Civil Engineering, OTH Regensburg**.
Thesis title: *Comparison of a carbon fiber reinforced concrete trough slab with a steel reinforced concrete trough slab in a system parking garage.*

2015   🔖 **Semester abroad, Istanbul Technical University**.
Subjects: *Hydraulics, Highway Engineering, Health and Safety in Construction.*

2004 – 2012   🔖 **Baccalaureate, Donau-Gymnasium Kelheim**.
Baccalaureate subjects: *Math, German, French, Sports.*

Research Publications

1 J. Flotzinger, F. Deuser, A. Jaziri, *et al.*, "synth-dacl: Does synthetic defect data enhance segmentation accuracy and robustness for real-world bridge inspections?" In *DAGM German Conference on Pattern Recognition (GCPR)*, Springer, 2025.

2 J. Flotzinger, D. Mediel-Cuadra, J. Zausinger, F. Deuser, L. Rauch, and T. Braml, "metal-dacl: Image-based automated damage recognition for steel bridge inspections," en, in *ce/papers: Proceedings of the EUROSTRUCT 2025: European Association on Quality Control of Bridges and Structures: Digital Transformation in Sustainability*, Wiley, Sep. 2025.

3 J. Flotzinger, P. J. Rösch, C. Benz, *et al.*, "dacl-Challenge: Semantic segmentation during visual bridge inspections," in *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) Workshops*, Jan. 2024, pp. 716–725.

4 J. Flotzinger, P. J. Rösch, and T. Braml, "dacl10k: Benchmark for semantic bridge damage segmentation," in *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, Jan. 2024, pp. 8626–8635.

5 J. Flotzinger, P. J. Rösch, N. Oswald, and T. Braml, "dacl1k: Real-world bridge damage dataset putting open-source data to the test," *Engineering Applications of Artificial Intelligence*, vol. 137, p. 109 106, 2024, ISSN: 0952-1976. DOI: https://doi.org/10.1016/j.engappai.2024.109106.

6 M. Haslbeck, J. Flotzinger, and T. Braml, "Predicting the military load class from bridge data with a multilayer perceptron," in *Life-Cycle of Structures and Infrastructure Systems*. CRC Press, Jun. 2023, pp. 3110–3117, ISBN: 9781003323020. DOI: 10.1201/9781003323020-379.

7 M. Sakoparnig, I. Galan, W. Kusterle, *et al.*, "On the significance of accelerator enriched layers in wet-mix shotcrete," *Tunnelling and Underground Space Technology*, vol. 131, p. 104 764, 2023, ISSN: 0886-7798. DOI: https://doi.org/10.1016/j.tust.2022.104764.

8 J. Flotzinger and T. Braml, "Automated damage classification on concrete bridges using convolutional neural networks," *Beton- und Stahlbetonbau*, vol. 117, no. 10, pp. 786–794, 2022. DOI: https://doi.org/10.1002/best.202200068. eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1002/best.202200068.

9 J. Flotzinger, P. J. Rösch, F. Deuser, T. Braml, and B. Maradni, "Applying automated damage classification during digital inspection of structures," in *2022 Conference on Structural Engineering, Mechanics and Computation (SEMC)*, 2022, pp. 1863–1869. DOI: https://doi.org/10.1201/9781003348443.

10 J. Flotzinger, P. J. Rösch, N. Oswald, and T. Braml, "Building inspection toolkit: Unified evaluation and strong baselines for bridge damage recognition," in *2022 IEEE International Conference on Image Processing (ICIP)*, 2022, pp. 1221–1225. DOI: 10.1109/ICIP46576.2022.9897743.

11 J. Juhart, M. Sakoparnig, J. Flotzinger, *et al.*, "Investigations on the pumping of wet-mix shotcrete and layer formation in applied shotcrete," in *Spritzbeton - Tagung 2021*, Spritzbeton-Tagung 2021 ; Conference date: 19-10-2021 Through 20-10-2021, 2021, pp. 10–26.

Skills

Languages		Strong reading, writing and speaking competencies for German, English and French. Basic knowledge in Italian.
Coding		Python, C++.
Web Dev		HTML.
Misc.		Academic research, teaching, training, consultation and structural design.

Miscellaneous Experience

Workshops and Challenges

2024 **Organizer of the "1st Workshop on Vision-Based Structural Inspections in Civil Engineering"**, WACV 2024.

Organizer of the "dacl-challenge", WACV 2024.

Awards and Achievements

2025 **Final nominee for Innovation and Young Talent Award**, Bavarian chamber of engineers.

Second place with dacl.ai at TUM.AI E-Lab Final Pitch Event, TUM.ai.

Miscellaneous Experience (continued)

■ **First place with dacl.ai at Prototype Funding, receiving 25,000€**, AI+Munich.

Volunteering

2024 – present ■ **TUM.ai** Member of the website taskforce. Member of the impact project "Hope" supervised by MI4People.

2015 – present ■ **Initiative Jugend und Kultur Kelheim e.V. (IJK)** Member. Providing a rehearsal room, funding records, organizing concerts and festivals, e.g. the JUKUU festival.

Certification

2022 ■ **EASA Drone Pilot**. A1/A2/A3.

2021 ■ **Computer Vision Nanodegree**. Udacity.

References

Available on Request