







Johannes Gebert, M.Sc.

List of Publications as of November 2022

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Research for a constitutive model of human cancellous bone based on clinical computed tomography and the use of high-performance computers. Performance and efficiency improvements for HPC applications.

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Publications

Reports

- 1 Gebert, J. (2015). *Der einfluss von stabilisierungsfäden auf die mechanischen eigenschaften eines faser-kunststoff-verbundes*. UAS Esslingen, Audi AG.
- 2 Gebert, J. (2017a). *Auslegung und simulation der reihenzweizylinder kurbelwelle eines formula student motors*. University of Stuttgart, Rennteam Stuttgart.
- 3 Gebert, J. (2017b). *Industrial thesis, therefore currently subject to non-disclosure agreement (nda)*. University of Stuttgart, in2p GmbH.

Conferences

- 1 Gebert, J., Schmid, M.-P., Schnabel, B., Schneider, R., & Resch, M. (2022). *The effective stiffness of 3-dimensional heterogenous structures derived by 1-dimensional finite element meshes*.
- 2 Gebert, J., Däges, J.-M., Schnabel, B., Schneider, R., & Resch, M. (2022). *Topology optimization by the anisotropy of cancellous bone*.
- 3 Gebert, J., Barry, D. P., & Dongarra, J. (2022a). *Powerman: Online power capping by computationally informed machine learning*. Research Poster.

Workshops

- 1 Gebert, J. (2021a). *A data driven biomechanical workflow on nec vulcan*. workshop. 32nd Workshop on Sustained Simulation Performance (WSSP). Cyberscience Center at Tohoku University, High-Performance Computing Center Stuttgart (HLRS), and NEC Corporation.
- 2 Gebert, J., Barry, D. P., & Dongarra, J. (2022b). *Strategies for power adjustments with machine learning*. workshop. 34th Workshop on Sustained Simulation Performance (WSSP). Cyberscience Center at Tohoku University, High-Performance Computing Center Stuttgart (HLRS), and NEC Corporation.

Technical and other Talks

- 1 Gebert, J. (2021b). The mechanical challenges of human cancellous bone, pre-conference virtual lightning talk. Supercomputing 21.
- 2 Gebert, J. (2021c). The mechanical challenges of human cancellous bone, virtual lightning talk. Supercomputing 21.

- Gebert, J. (2021d). Ki und bildung, in vertretung von prof. michael m. resch. Impulse kontrovers, PODIUMSGESPRÄCHE 2021 - Künstliche Intelligenz. Seminar für Ausbildung und Fortbildung der Lehrkräfte (Gymnasium und Sonderpädagogik), Stuttgart, Abteilung Gymnasium.

Software

- Gebert, J. (2022b). A-fmf-file-to-meta-format-converter. [doi:10.5281/ZENODO.6301402](https://doi.org/10.5281/ZENODO.6301402)
- Gebert, J. (2022c). M-rot-rotational-tensor-optimization. [doi:10.5281/ZENODO.6301413](https://doi.org/10.5281/ZENODO.6301413)
- Gebert, J. (2022d). I-dos-downscaling. [doi:10.5281/ZENODO.6301421](https://doi.org/10.5281/ZENODO.6301421)
- Gebert, J. (2022e). I-cbi-ct-binarization. [doi:10.5281/ZENODO.6301417](https://doi.org/10.5281/ZENODO.6301417)
- Gebert, J. (2022f). I-cif-ct-image-filter. [doi:10.5281/ZENODO.6301419](https://doi.org/10.5281/ZENODO.6301419)
- Gebert, J. (2022g). M-dtc-direct-tensor-computation. [doi:10.5281/ZENODO.6321325](https://doi.org/10.5281/ZENODO.6321325)
- Gebert, J. (2022h). A-gli-geberts-library. [doi:10.5281/ZENODO.6301408](https://doi.org/10.5281/ZENODO.6301408)

Datasets

- Gebert, J., Schneider, R., Helwig, P., & Schenkengel, J.-P. (2021). data. Version V1. [doi:10.18419/darus-1182](https://doi.org/10.18419/darus-1182)
- Ruf, M., Steeb, H., Gebert, J., Schneider, R., & Helwig, P. (2021). data. Version V1. [doi:10.18419/darus-1177](https://doi.org/10.18419/darus-1177)

Volunteering

Conferences

- Gebert, J. (2022a). *Platform for advanced scientific computing (pasc)*. Sponsored by the Association for Computing Machinery (ACM) and the Swiss National Supercomputing Centre (CSCS).

Supervised Student's & Final Thesis

Master's Thesis

- Schnabel, B. (2020). *The mean intercept length tensor and direct mechanics in qualitative and quantitative comparison*. Masterthesis.
- Zidehi, H. (2021). *Intertrabecular parameters of human spongy bones*. Masterthesis.
- Mao, H. (2021). *Technologien für ein agrartechnisches stabilitätsprogramm*. Masterthesis.
- Neher, N. (2021). *Development of a parallel algorithm for extracting an irregular graph from human cancellous bone*. Masterthesis.
- Zito, N. (2021). *Industrial thesis, therefore currently subject to non-disclosure agreement (nda)*. Masterthesis.
- Sack, M. (2022). *Industrial thesis, therefore currently subject to non-disclosure agreement (nda)*. Masterthesis.
- Rouhijelekaran, A. (2022). *Industrial thesis, therefore currently subject to non-disclosure agreement (nda)*. Masterthesis.

- 8 Frischeisen, K. (2022). *Industrial thesis, therefore currently subject to non-disclosure agreement (nda)*. Masterthesis.
- 9 Pouya, M. (2023). *Industrial thesis, therefore currently subject to non-disclosure agreement (nda)*. Masterthesis.

Student's Thesis

- 1 Heudorfer, S. (2021). *Rechnergestützte synthese und optimierung elektrischer maschinen*. Studienarbeit.
- 2 Liu, B. (2022). *Transiente simulation zur 3d-induktiven warmumformung mit der ansys workbench*. Studienarbeit.

Bachelor's Thesis

- 1 Däges, J.-M. (2021). *Tensor driven design of biocompatible structures*. Bachelorthesis.
- 2 Schmid, M.-P. (2021). *Direct mechanics with finite element trusses*. Bachelorthesis.
<http://dx.doi.org/10.18419/opus-11818>.

Supervised Student Research Assistants

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