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Faster X-ray computed tomography in real-world dynamic applications

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Publications

1. Adriaan B.M. Graas, Evert C. Wagner, Tristan van Leeuwen, J. Ruud van Ommen, K. Joost Batenburg, Felix Lucka, and Luis M. Portela. “X-ray tomography for fully-3D time-resolved reconstruction of bubbling fluidized beds”. In: *Powder Technology* 434 (2024), p. 119269. ISSN: 0032-5910. DOI: [10.1016/j.powtec.2023.119269](https://doi.org/10.1016/j.powtec.2023.119269)
2. Adriaan Graas, Sophia Bethany Coban, K. Joost Batenburg, and Felix Lucka. “Just-in-time deep learning for real-time X-ray Computed Tomography”. In: *Scientific Reports* 13.1 (2023), p. 20070. ISSN: 2045-2322. DOI: [10.1038/s41598-023-46028-9](https://doi.org/10.1038/s41598-023-46028-9)
3. Adriaan Graas, Willem Jan Palenstijn, Ben van Werkhoven, and Felix Lucka. “ASTRA KernelKit: GPU-accelerated projectors for Computed Tomography using CuPy”. In: *Applied Mathematics for Modern Challenges* 2.1 (2024), pp. 70–92. DOI: [10.3934/ammc.2024004](https://doi.org/10.3934/ammc.2024004)
4. Adriaan Graas and Felix Lucka. “Scintillator decorrelation for self-supervised X-ray radiograph denoising”. In: *Measurement Science and Technology* 36.6 (2025), p. 065415. DOI: [10.1088/1361-6501/addc06](https://doi.org/10.1088/1361-6501/addc06)
5. Adriaan Graas, Evert Wagner, and Felix Lucka. *Fluidized-bed-phantom radiographs from three Caesium-Iodine DALSA Xineos-3131 detectors for empirical PRF estimation*. Dataset on Zenodo. 2025. DOI: [10.5281/zenodo.15383254](https://doi.org/10.5281/zenodo.15383254)

Curriculum Vitæ

Adriaan Graas was born in Hoorn, and brought up Woerden, the Netherlands. After working as a freelance software engineer in Bodegraven, he studied the BSc. Earth Sciences with a *beta+* track at Utrecht University, finishing in 2015. He completed the MSc. Mathematical Sciences at Utrecht University in 2018, with specialization in Scientific Computing and master thesis on *Dimensionality Reduction & Uncertainty Quantification in Seismic Waveform Inversion*. In the same year, he started his doctoral research at the Centrum Wiskunde & Informatica in Amsterdam, as part of the NDNS+ cluster on topic of Mathematics and Algorithms for 3D Imaging of Dynamic Processes, with Dr. Felix Lucka as co-promotor and daily supervisor, and Prof. Dr. Joost Batenburg as promotor. The research was embedded in the *Computational Imaging* group, currently headed by Prof. Dr. Tristan van Leeuwen. Adriaan lectured the master course *Laboratory Class Scientific Computing*, organised with Prof. Dr. Rob Bisseling. During his Ph.D. studies, he took courses in scientific writing and scientific conduct.