List of Publications of Nuutti Hyvönen (May 29, 2025)

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List of publications

An up-to-date list of publications, accompanied by the submitted manuscripts, can be found at http://users.aalto.fi/nhyvonen/.

Articles submitted to peer-reviewed international scientific journals

1. H. Garde, M. Hirvensalo and N. Hyvönen. Infinite-dimensional Lipschitz stability in the Calderón problem and general Zernike bases. (https://arxiv.org/abs/2502.16264)

2. J. Bisch, M. Hirvensalo and N. Hyvönen. Continuity of the linearized forward map of electrical impedance tomography from square-integrable perturbations to Hilbert-Schmidt operators. (https://arxiv.org/abs/2409.10671)

A.1: Articles in peer-reviewed international scientific journals

3. A. Jäškelïnen, J. Toivanen, A. Hänninen, V. Kolehmainen and N. Hyvönen. Projection-based preprocessing for electrical impedance tomography to reduce the effect of electrode contacts. *SIAM Journal on Imaging Sciences*, accepted. (https://arxiv.org/abs/2412.15009)

4. Y. Suzuki, N. Hyvönen and T. Karvonen. Möbius-transformed trapezoidal rule. *Mathematics of Computation*, published electronically (https://doi.org/10.1090/mcom/4084)

5. A. Autio, H. Garde, M. Hirvensalo and N. Hyvönen. Linearization-based direct reconstruction for EIT using triangular Zernike decompositions. *Inverse Problems and Imaging*, **19**:456–478, 2025 (https://doi.org/10.3934/ipi.2024040)

6. N. Hyvönen, A. Jääskeläinen, R. Maity and A. Vavilov. Bayesian experimental design for head imaging by electrical impedance tomography. *SIAM Journal on Applied Mathematics*, **84**:1718–1741, 2024 (https://doi.org/10.1137/23M1624634)

7. S. Eberle-Blick and N. Hyvönen. Bayesian experimental design for linear elasticity. *Inverse Problems and Imaging*, **18**:1294–1319, 2024 (https://doi.org/10.3934/ipi.2024015)

8. J. Nousiainen, J.-P. Puska, T. Helin, N. Hyvönen and M. Kasper. The power of prediction: spatiotemporal Gaussian process modeling for predictive control in slope-based wavefront sensing. *Journal of Astronomical Telescopes, Instruments, and Systems*, **10**:039001, 2024 (https://doi.org/10.1117/1.JATIS.10.3.039001)

9. H. Garde and N. Hyvönen. Linearised Calderón problem: Reconstruction and Lipschitz stability for infinite-dimensional spaces of unbounded perturbations. *SIAM Journal on Mathematical Analysis*, **56**:3588–3604, 2024 (https://doi.org/10.1137/23M1609270)

10. J. Toivanen, A. Paldanius, B. Dekdouk, V. Candiani, A. Hänninen, T. Savolainen, D. Strbian, N. Forss, N. Hyvönen, J. Hyttinen and V. Kolehmainen, An algorithm for detection and monitoring of intracerebral hemorrhages using EIT, *Journal of Medical Imaging*, **11**:014502, 2024 (https://doi.org/10.1117/1.JMI.11.1.014502)

11. T. Helin, N. Hyvönen, J. Maaninen and J.-P. Puska. Bayesian design of measurements for magnetorelaxometry imaging. *Inverse Problems*, **39**:125020, 2024 (https://doi.org/10.1088/1361-6420/ad07fd)

12. H. Garde, N. Hyvönen and T. Kuutela. Series reversion for practical electrical impedance tomography with modeling errors. *Inverse Problems*, **39**:085007, 2023 (https://doi.org/10.1088/1361-6420/acdab8)

13. P. Hirvi, T. Kuutela, Q. Fang, A. Hannukainen, N. Hyvönen and I. Nissilä. Effects of atlas-based anatomy on modelled light transport in the neonatal head. *Physics in Medicine & Biology*, **68**:135019, 2023 (https://doi.org/10.1088/1361-6560/acd48c)

14. H. Garde and N. Hyvönen. Reconstruction of singular and degenerate inclusions in Calderón's problem. *Inverse Problems and Imaging*, **16**:1219–1227, 2022 (https://doi.org/10.3934/ipi.2022021)

15. T. Helin, N. Hyvönen and J.-P. Puska. Edge-promoting adaptive Bayesian experimental design for X-ray imaging. *SIAM Journal on Scientific Computing*, **44**:B506–B530, 2022 (https://doi.org/10.1137/21M1409330)

16. H. Garde and N. Hyvönen. Series reversion in Calderón's problem. *Mathematics of Computation*, **91**:1925–1953, 2022 (https://doi.org/10.1090/mcom/3729)

17. J. Dardé, N. Hyvönen, T. Kuutela and T. Valkonen. Contact adapting electrode model for electrical impedance tomography. *SIAM Journal on Applied Mathematics*, **82**:427–449, 2022 (https://doi.org/10.1137/21M1396125)

18. V. Candiani, N. Hyvönen, J. Kaipio and V. Kolehmainen. Approximation error method for imaging the human head by electrical impedance tomography. *Inverse Problems*, **37**:125008, 2021 (https://doi.org/10.1088/1361-6420/ac346a)

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G: Theses

1. N. Hyvönen. *Diffusive Tomography Methods: Special Boundary Conditions and Characterization of Inclusions*. Dissertation, Helsinki University of Technology, 2004.

2. N. Hyvönen. *Analysis of optical tomography with non-scattering regions*. Master's Thesis, Helsinki University of Technology, 2000.