

Publication List

Erik J. Bekkers

September 30, 2019

Journal Papers

- [1] Remco Duits, Erik J. **Bekkers**, and Alexey Mashtakov. “Fourier Transform on the Homogeneous Space of 3D Positions and Orientations for Exact Solutions to Linear PDEs”. In: *Entropy* 21.1 (2019). [PDF link](#).
- [2] Erik J **Bekkers**, Marco Loog, Bart M ter Haar Romeny, and Remco Duits. “Template matching via densities on the roto-translation group”. In: *IEEE transactions on pattern analysis and machine intelligence* 40.2 (2018), pp. 452–466. [PDF link](#).
- [3] Erik J **Bekkers**, Da Chen, and Jorg M Portegies. “Nilpotent Approximations of Sub-Riemannian Distances for Fast Perceptual Grouping of Blood Vessels in 2D and 3D”. In: *Journal of Mathematical Imaging and Vision* 60.6 (2018), pp. 882–899. [PDF link](#).
- [4] Michiel M H J Janssen, Augustus J E M Janssen, Erik J **Bekkers**, Javier Oliván Bescós, and Remco Duits. “Design and Processing of Invertible Orientation Scores of 3D Images”. In: *Journal of Mathematical Imaging and Vision* (2018), pp. 1–32. [PDF link](#).
- [5] Jiong Zhang, Erik J **Bekkers**, Da Chen, Tos T J M Berendschot, J Schouten, Josien P W Pluim, Y Shi, Behdad Dashtbozorg, and Bart M ter Haar Romeny. “Reconnection of Interrupted Curvilinear Structures via Cortically Inspired Completion for Ophthalmologic Images”. In: *IEEE Transactions on Biomedical Engineering* 65.5 (2018), pp. 1151–1165. [PDF link](#).
- [6] Jiong Zhang, Y Chen, Erik J **Bekkers**, M Wang, Behdad Dashtbozorg, and Bart M ter Haar Romeny. “Retinal vessel delineation using a brain-inspired wavelet transform and random forest”. In: *Pattern Recognition* 69 (2017), pp. 107–123. [PDF link](#).
- [7] Alexey P Mashtakov, Remco Duits, Yuri L Sachkov, Erik J **Bekkers**, and Ivan Beschastnyi. “Tracking of Lines in Spherical Images via Sub-Riemannian Geodesics in $SO(3)$ ”. In: *Journal of Mathematical Imaging and Vision* 58.2 (2017), pp. 239–264. [PDF link](#).
- [8] Jiong Zhang, Behdad Dashtbozorg, Erik J **Bekkers**, Josien P W Pluim, Remco Duits, and Bart M ter Haar Romeny. “Robust Retinal Vessel Segmentation via Locally Adaptive Derivative Frames in Orientation Scores”. In: *IEEE Transactions on Medical Imaging* PP.99 (2016), pp. 1–1. [PDF link](#).
- [9] Fan Huang, Behdad Dashtbozorg, Jiong Zhang, Erik J **Bekkers**, Samaneh Abbasi-Sureshjani, Tony Chan, and Bart M ter Haar Romeny. “Reliability of Using Retinal Vascular Fractal Dimension as a Biomarker in the Diabetic Retinopathy Detection”. In: *Journal of Ophthalmology* 2016 (2016). [PDF link](#).
- [10] Bart M ter Haar Romeny, Erik J **Bekkers**, Jiong Zhang, Samaneh Abbasi-Sureshjani, Fan Huang, Remco Duits, Behdad Dashtbozorg, Tos T J M Berendschot, Iris Smit-Ockeloen, Koen A J Eppenhof, et al. “Brain-inspired algorithms for retinal image analysis”. In: *Machine Vision and Applications* (2016), pp. 1–19. [PDF link](#).
- [11] Erik J **Bekkers**, Remco Duits, Alexey P Mashtakov, and Gonzalo R Sanguinetti. “A PDE Approach to Data-Driven Sub-Riemannian Geodesics in $SE(2)$ ”. In: *SIAM Journal on Imaging Sciences* 8.4 (2015), pp. 2740–2770. [PDF link](#).
- [12] Erik J **Bekkers**, Remco Duits, Tos T J M Berendschot, and Bart M ter Haar Romeny. “A Multi-Orientation Analysis Approach to Retinal Vessel Tracking”. English. In: *Journal of Mathematical Imaging and Vision* 49.3 (2014), pp. 583–610. [PDF link](#).

Conference Papers

- [1] Erik J **Bekkers**. “B-Spline CNNs on Lie groups”. In: *arXiv preprint*. 2019. [PDF link](#).
- [2] Erik J **Bekkers**, Maxime W Lafarge, Mitko Veta, Koen A J Eppenhof, Josien P W Pluim, and Remco Duits. “Roto-Translation Covariant Convolutional Networks for Medical Image Analysis”. In: *Medical Image Computing and Computer Assisted Intervention – MICCAI 2018*. Ed. by Alejandro F. Frangi, Julia A. Schnabel, Christos Davatzikos, Carlos Alberola-López, and Gabor Fichtinger. Cham: Springer International Publishing, 2018, pp. 440–448. [PDF link](#).

- [3] Erik J **Bekkers**, Remco Duits, Alexey P Mashtakov, and Yuri L Sachkov. “Vessel Tracking via Sub-Riemannian Geodesics on the Projective Line Bundle”. In: *International Conference on Geometric Science of Information*. Springer, 2017, pp. 773–781. [PDF link](#).
- [4] Michiel H J Janssen, Tom C J Dela Haije, Frank C Martin, Erik J **Bekkers**, and Remco Duits. “The Hessian of axially symmetric functions on SE(3) and application in 3D image analysis”. In: *International Conference on Scale Space and Variational Methods in Computer Vision*. Springer, 2017, pp. 643–655. [PDF link](#).
- [5] Behdad Dashtbozorg, Samaneh Abbasi-Sureshjani, Jiong Zhang, Fan Huang, Erik J **Bekkers**, and Bart M ter Haar Romeny. “Infrastructure for Retinal Image Analysis”. English. In: *Proceedings of the Ophthalmic Medical Image Analysis Third International Workshop, OMIA 2016, Held in Conjunction with MICCAI 2016, Athens, Greece, October 21, 2015*. Ed. by E Trucco, X Chen, MK Garvin, JJ Liu, and XY Frank. Iowa Research Online, 2016, pp. 1–8. [PDF link](#).
- [6] Samaneh Abbasi-Sureshjani, Iris Smit-Ockeloen, Erik J **Bekkers**, Behdad Dashtbozorg, and Bart M ter Haar Romeny. “Automatic detection of vascular bifurcations and crossings in retinal images using orientation scores”. In: *Biomedical Imaging (ISBI), 2016 IEEE 13th International Symposium on*. IEEE, 2016, pp. 189–192. [PDF link](#).
- [7] Erik J **Bekkers**, Remco Duits, and Marco Loog. “Training of Templates for Object Recognition in Invertible Orientation Scores: Application to Optic Nerve Head Detection in Retinal Images”. English. In: *Energy Minimization Methods in Computer Vision and Pattern Recognition*. Ed. by X-C Tai, E Bae, TF Chan, and M Lysaker. Vol. 8932. Lecture Notes in Computer Science. Springer International Publishing, 2015, pp. 464–477. [PDF link](#).
- [8] Erik J **Bekkers**, Remco Duits, Alexey P Mashtakov, and Gonzalo R Sanguinetti. “Data-Driven Sub-Riemannian Geodesics”. English. In: *Scale Space and Variational Methods in Computer Vision*. Ed. by J-F Aujol, M Nikolova, and N Papakadis. Lecture Notes in Computer Science. Springer, 2015, pp. 613–625. [PDF link](#).
- [9] Erik J **Bekkers**, Jiong Zhang, Remco Duits, and Bart M ter Haar Romeny. “Curvature Based Biomarkers for Diabetic Retinopathy via Exponential Curve Fits in SE(2)”. English. In: *Proceedings of the Ophthalmic Medical Image Analysis Second International Workshop, OMIA 2015, Held in Conjunction with MICCAI 2015, Munchen, Germany, October 9, 2015*. Ed. by E Trucco, X Chen, MK Garvin, JJ Liu, and XY Frank. Iowa Research Online, 2015, pp. 113–120. [PDF link](#).
- [10] Gonzalo R Sanguinetti, Erik J **Bekkers**, Remco Duits, Michiel H J Janssen, Alexey P Mashtakov, and Jean-Marie Mirebeau. “Sub-Riemannian Fast Marching in SE(2)”. In: *Progress in Pattern Recognition, Image Analysis, Computer Vision, and Applications*. Springer International Publishing, 2015, pp. 366–374. [PDF link](#).
- [11] Jiong Zhang, Erik J **Bekkers**, Samaneh Abbasi-Sureshjani, Behdad Dashtbozorg, and Bart M ter Haar Romeny. “Robust and Fast Vessel Segmentation via Gaussian Derivatives in Orientation Scores”. English. In: *International Conference on Image Analysis and Processing 2015*. Ed. by G Vernazza, E Puppò, and V Murino. Lecture Notes in Computer Science. 2015, pp. 537–547. [PDF link](#).
- [12] Koen A J Eppenhof, Erik J **Bekkers**, Tos T J M Berendschot, Josien P W Pluim, and Bart M ter Haar Romeny. “Retinal Artery/Vein Classification via Graph Cut Optimization”. English. In: *Proceedings of the Ophthalmic Medical Image Analysis Second International Workshop, OMIA 2015, Held in Conjunction with MICCAI 2015, Munchen, Germany, October 9, 2015*. Ed. by E Trucco, X Chen, MK Garvin, JJ Liu, and XY Frank. Iowa Research Online, 2015, pp. 121–128. [PDF link](#).
- [13] Fan Huang, Jiong Zhang, Erik J **Bekkers**, Behdad Dashtbozorg, and Bart M ter Haar Romeny. “Stability Analysis of Fractal Dimension in Retinal Vasculature”. English. In: *Proceedings of the Ophthalmic Medical Image Analysis Second International Workshop, OMIA 2015, Held in Conjunction with MICCAI 2015, Munchen, Germany, October 9, 2015*. Ed. by E Trucco, X Chen, MK Garvin, JJ Liu, and XY Frank. Iowa Research Online, 2015, pp. 1–8. [PDF link](#).
- [14] Julius Hannink, Remco Duits, and Erik J **Bekkers**. “Crossing-Preserving Multi-scale Vesselness”. English. In: *Medical Image Computing and Computer-Assisted Intervention – MICCAI 2014*. Ed. by P Golland, N Hata, C Barillot, J Hornegger, and R Howe. Vol. 8674. Lecture Notes in Computer Science. Springer International Publishing, 2014, pp. 603–610. [PDF link](#).
- [15] Erik J **Bekkers**, Remco Duits, and Bart M ter Haar Romeny. “Optic Nerve Head Detection via Group Correlations in Multi-orientation Transforms”. English. In: *Image Analysis and Recognition*. Ed. by A Campilho and M Kamel. LNCS. Springer, 2014, pp. 293–302. [PDF link](#).