

JOHAN BERGLUND, M.Sc., Ph.D.

ADDRESS:	Frodegatan 10B	BORN:	May 19, 1983
	753 27, UPPSALA	PHONE:	+46 70 - 589 1978
	SWEDEN	E-MAIL:	berglund.hpj@gmail.com

DEGREES

2022	Docent in MEDICAL PHYSICS, Uppsala University
2008 – 2011	Ph.D. in MEDICAL SCIENCE, Uppsala University Thesis: “Separation of Water and Fat Signal in Magnetic Resonance Imaging”
2003 – 2008	M.Sc. in PHYSICS ENGINEERING, Uppsala University Thesis: “Image analysis of whole-body water- and fat MR images”

EXPERIENCE

2021 –	MR PHYSICIST, Akademiska Sjukhuset, Uppsala
2017 – 2021	ASSISTANT PROFESSOR, Karolinska Institutet, Solna
2014 – 2017	MR PHYSICIST, Karolinska University Hospital, Huddinge/Solna
2012 – 2014	CONCEPT ENGINEER, Philips Women’s Healthcare, Solna
2011 – 2012	RESEARCH ASSISTANT, Dept. of Radiology, Uppsala University

COURSES

2022	PHILIPS PULSE PROGRAMMING AND RECON 2.0 COURSE, GyroTools
2021	TEACHING AND LEARNING IN HIGHER EDUCATION, Karolinska Institutet
2017	PEDAGOGY FOR DOCTORAL SUPERVISORS, Karolinska Institutet
2017	EPIC PROGRAMMING USING KSFOUNDATION (GE pulse programming), Karolinska University Hospital
2016	MR VID DOSPLANERING AV STRÅLTERAPI, Uppsala University
2014	INTRODUCTORY DOCTORAL SUPERVISION COURSE, Karolinska Institutet
2014	IDEA MRI PULSE SEQUENCE PROGRAMMING, Siemens Healthcare Training Center, Erlangen
2006	MUSICOLOGY, PHILOSOPHY, HISTORY OF SCIENCE AND IDEAS, Uppsala University

PUBLICATIONS (JOURNAL)

Sprenger T, Kits A, Norbeck O, van Niekerk A, **Berglund J**, Rydén H, Avventi E, Skare S. “NeuroMix – A single scan brain exam”. *Magnetic Resonance in Medicine*, 87(5):2178–2193, 2022.

van Niekerk A, Sprenger T, Norbeck O, Avventi E, Rydén H, **Berglund J**, Skare S. “Control of a wireless sensor using the pulse sequence for prospective motion correction in brain-MRI”. *Magnetic Resonance in Medicine*, 87(2):1046–1061, 2022.

Berglund J, Sprenger T, van Niekerk A, Rydén H, Avventi E, Norbeck O, Skare S. “Motion Insensitive Susceptibility Weighted Imaging”. *Magnetic Resonance in Medicine*, 86(4):1970–1982, 2021.

Berglund J, van Niekerk A, Rydén H, Sprenger T, Avventi E, Norbeck O, Glimberg S, Olesen O, Skare S. “Prospective Motion Correction for Diffusion Weighted EPI of the Brain Using an Optical Markerless Tracker”. *Magnetic Resonance in Medicine*, 85(3):1427–1440, 2021.

Rydén H, Norbeck O, Avventi E, Skorpil M, van Niekerk A, Skare S, **Berglund J**. “Chemical Shift Encoding using Asymmetric Readout Waveforms”. *Magnetic Resonance in Medicine*, 85(3):1468–1480, 2021.

Norbeck O, van Niekerk A, Avventi E, Rydén H, **Berglund J**, Sprenger T, Skare S. “T1-FLAIR imaging during continuous head motion: combining PROPELLER with an intelligent marker”. *Magnetic Resonance in Medicine*, 85(2):868–882, 2021.

Rydén H, **Berglund J**, Norbeck O, Avventi E, Sprenger T, Skare S. “RARE Two-point Dixon with Dual Bandwidths”. *Magnetic Resonance in Medicine*, 84(5):2456–2468, 2020.

Avventi E, Rydén H, Norbeck O, **Berglund J**, Sprenger T, Skare S. “Projection-based 3D/2D registration for prospective motion correction”. *Magnetic Resonance in Medicine*, 84(3):1534–1542, 2020.

Norbeck O, Sprenger T, Avventi E, Rydén H, Kits A, **Berglund J**, Skare S. “Optimizing 3D EPI for Rapid T1-weighted Imaging”. *Magnetic Resonance in Medicine*, 84(3):1441–1455, 2020.

Berglund J, Rydén H, Avventi E, Norbeck O, Sprenger T, Skare S. “Fat/water separation in k-space with real-valued estimates and its combination with POCS”. *Magnetic Resonance in Medicine* 83(2):653–661, 2020.

Skorpil M, Rydén H, **Berglund J**, Brynolfsson P, Brosjö O, Tsagozis P. “Soft-tissue fat tumours: differentiating malignant from benign using proton density fat fraction quantification MRI”. *Clinical Radiology* 74(7):534–538, 2019.

Rydén H, **Berglund J**, Norbeck O, Avventi E, Skare S. “T1 Weighted Fat/Water Separated PROPELLER Acquired with Dual Bandwidths”. *Magnetic Resonance in Medicine* 80(6):2501–2513, 2018.

Skorpil M, Rydén H, Wejde J, Lidbrink E, Brosjö O, **Berglund J**. “The effect of radiotherapy on fat content and fatty acids in myxoid liposarcomas quantified by MRI”. *Magnetic Resonance Imaging*, 43:37–41, 2017.

Berglund J, Skorpil M. “Multi-scale graph-cut algorithm for efficient water-fat separation”. *Magnetic Resonance in Medicine*, 78(3):941–949, 2017.

Granberg T, Uppman M, Hashim F, Cananau C, Engström-Nordin L, Shams S, **Berglund J**, Forslin Y, Aspelin P, Fredrikson S, Kristoffersen-Wiberg M. “Clinical feasibility of synthetic MRI in multiple sclerosis: a diagnostic and volumetric validation study”. *American Journal of Neuroradiology* 37(6):1023–1029, 2016.

Gärdin A, Rasinski P, **Berglund J**, Shalabi A, Schulte H, Brismar TB. “T2* relaxation time in Achilles tendinosis and controls and its correlation to clinical score”. *Journal of Magnetic Resonance Imaging* 43(6):1417–22, 2016.

Berglund J, Johansson H, Lundqvist M, Cederström B, Fredenberg E. “Energy weighting improves dose efficiency in clinical practice: implementation on a spectral photon-counting mammography system”. *Journal of Medical Imaging* 1(3): 031003, 2014.

Sechopoulos I, Sabol JM, **Berglund J**, Bolch WE, Brateman L, Christodoulou E, Flynn M, Geiser W, Goodsitt M, Jones AK, Lo JY, Maidment AD, Nishino K, Nosratieh A, Ren B, Segars WP, von Tiedemann M. “Radiation dosimetry in digital breast tomosynthesis: report of AAPM Tomosynthesis Subcommittee Task Group 223”. *Medical Physics* 41(9): 091501, 2014.

Gifford A, Kullberg J, **Berglund J**, Malmberg F, Coate KC, Williams PE, Cherrington AD, Avison MJ, Welch EB. “Canine body composition quantification using 3 Tesla fat-water MRI”. *Journal of Magnetic Resonance Imaging* 39(2):485–91, 2014.

Silver HJ, Niswender KD, Kullberg J, **Berglund J**, Johansson L, Bruvold M, Avison MJ, Welch EB. “Comparison of gross body fat-water magnetic resonance imaging at 3 Tesla to dual energy x-ray absorptiometry in obese women”. *Obesity* 21(4):765–74, 2013.

Rönn M, Lind PM, Karlsson H, Cvek K, **Berglund J**, Malmberg F, Orberg J, Lind L, Ortiz-Nieto F, Kullberg J. “Quantification of total and visceral adipose tissue in fructose-fed rats using water-fat separated single echo MRI”. *Obesity* 21(9):E388–95, 2013.

Rönn M, Kullberg J, Karlsson H, **Berglund J**, Malmberg F, Orberg J, Lind L, Ahlström H, Lind PM. “Bisphenol A exposure increases liver fat in juvenile fructose-fed Fischer 344 rats”. *Toxicology* 303:125–32, 2013.

Bjermo H, Iggman D, Kullberg J, Dahlman I, Johansson L, Persson L, **Berglund J**, Pulkki K, Basu S, Uusitupa M, Rudling M, Arner P, Cederholm T, Ahlström H, Risérus U. “Effects of n-6 PUFAs compared with SFAs on liver fat, lipoproteins, and inflammation in abdominal obesity: a randomized controlled trial”. *American Journal of Clinical Nutrition* 95(5):1003–12, 2012.

Berglund J, Ahlström H, Kullberg J. “Model-based mapping of fat unsaturation and chain length by chemical shift imaging – phantom validation and in vivo feasibility”. *Magnetic Resonance in Medicine* 68(6):1815–1827, 2012.

Berglund J, Kullberg J. “Three-dimensional water/fat separation and T₂* estimation based on whole-image optimization – application in breathhold liver imaging at 1.5 T”. *Magnetic Resonance in Medicine* 67(6):1684–1693, 2012.

Berglund J, Ahlström H, Johansson L, Kullberg J. “Two-point Dixon method with flexible echo times”. *Magnetic Resonance in Medicine*, 65(4):994–1004, 2011.

Berglund J, Johansson L, Ahlström H, Kullberg J. “Three-point Dixon method enables whole-body water and fat imaging of obese subjects”. *Magnetic Resonance in Medicine* 63(6):1659–1668, 2010.

PUBLICATIONS (CONFERENCE)

Berglund J. “Phase-Unwrapping based on Graph-Cuts for Low-vent Phase-Contrast Cine MRI”. In: *Proceedings of the 30th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Toronto 2023, pp. 5125.

Norbeck O, Rydén H, van Niekirk A, **Berglund J**, Skorpil M. “Fat/water separated & SMS accelerated pseudo 3D PROPELLER”. In: *Proceedings of the 30th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Toronto 2023, pp. 2277.

van Niekirk A, **Berglund J**, Rydén H, Sprenger T, Norbeck O, Avventi E, Skare S. “Real time visual feedback for reproducible head motion”. In: *Proceedings of the 29th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, London 2022, pp. 0855.

Skare S, van Niekirk A, Sprenger T, Ramolli A, Österman Y, Svoboda J, Norbeck O, Rydén H, Avventi E, **Berglund J**. “A very motion-robust pediatric brain MRI protocol for clinical use”. In: *Proceedings of the 29th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, London 2022, pp. 2643.

Sprenger T, van Niekirk A, **Berglund J**, Rydén H, Avventi E, Skare S. “Neuromix – a motion robust single scan brain exam”. In: *Proceedings of the 29th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, London 2022, pp. 0360.

Rydén H, **Berglund J**, Norbeck O, Sprenger T, Avventi E, van Niekirk A, Skare S. “A Dual-Bandwidth RARE Dixon Sequence”. ISMRM Workshop on: Data Sampling & Image Reconstruction, Sedona 2020.

Sprenger T, Norbeck O, **Berglund J**, Rydén H, Avventi E, Skare S. “EPIMix 3.0”. In: *Proceedings of the 27th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Montréal 2019.

Berglund J, Rydén H, Avventi E, Sprenger T, Norbeck O, Skare S. “Prospectively Motion Corrected DWI by Projection Fat Navigators”. In: *Proceedings of the 26th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Paris 2018.

Rydén H, **Berglund J**, Norbeck O, Avventi E, Skare S. “T1-weighted bipolar fat/water separated spin-echo PROPELLER acquired with dual bandwidths”. In: *Proceedings of the 26th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Paris 2018.

Norbeck O, Avventi E, Rydén H, **Berglund J**, Sprenger T, Skare S. “Pseudo-3D PROPELLER”. In: *Proceedings of the 26th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Paris 2018.

Sprenger T, Engström M, Norbeck O, Rydén H, Avventi E, **Berglund J**, Skare S. “Multi-Contrast EPI – Towards Clinical Application”. In: *Proceedings of the 26th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Paris 2018.

Skare S, Sprenger T, Norbeck O, Rydén H, Avventi E, Blomberg L, **Berglund J**, Skorpil M, Sandell M, Engström M. “30 brain MRI exams in 1 hour using a multi-contrast EPI sequence”. In: *Proceedings of the 26th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Paris 2018.

Berglund J, Avventi E, Sprenger T, Rydén H, Norbeck O, Skare S. “EPI with projected fat navigators for prospective motion correction”. ISMRM Workshop on: Motion correction in MRI & MRS, Cape Town 2017.

Sprenger T, Engström M, Norbeck O, Rydén H, Avventi E, **Berglund J**, Skare S. “Making a one-minute full-brain MR exam motion robust”. ISMRM Workshop on: Motion correction in MRI & MRS, Cape Town 2017.

Berglund J. “Fat Water Separation: Applications in MSK imaging”. Educational talk. In: *Proceedings of the 25th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Honolulu 2017.

Skorpil M, Rydén H, Lidbrink E, Brosjö O, **Berglund J**. “Fat fraction histogram analysis: Insights into the biology of lipomatous tumors”. In: *Proceedings of the 25th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Honolulu 2017.

Rydén H, **Berglund J**, Avventi E, Norbeck O, Skare S. “T1-weighted two-point fat/water separated PROPELLER acquired with dual bandwidths”. In: *Proceedings of the 25th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Honolulu 2017.

Berglund J, Rydén H, Skorpil M. “Increased measurement precision for fatty acid composition mapping by parameter reduction”. In: *Proceedings of the 24th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Singapore 2016.

Granberg T, Uppman M, Hashim F, Cananau C, Engström-Nordin L, **Berglund J**, Forslin Y, Aspelin P, Fredrikson S, Kristoffersen-Wiberg M. “Clinical Feasibility of Synthetic MRI in Multiple Sclerosis: a Diagnostic and Volumetric Validation Study”. Annual meeting of the *Radiological Society of North America*, Chicago 2015.

Berglund J. “Multi-scale graph cut algorithm for water/fat separation”. In: *Proceedings of the 23rd Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Toronto 2015.

Berglund J, Johansson H, Maack HI, Fredenberg E. “Energy weighting improves the image quality of spectral mammograms: Implementation on a photon-counting mammography system”. *Proceedings of SPIE* Vol. 9033, 90331E, San Diego (CA), 2014.

Smith DS, **Berglund J**, Kullberg J, Ahlström H, Avison MJ, Welch EB. “Optimization of Fat-Water Separation Algorithm Selection and Options Using Image-Based Metrics with Validation by ISMRM Fat-Water Challenge Datasets”. In: *Proceedings of the 21st Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Salt Lake City 2013.

Gifford A, Kullberg J, **Berglund J**, Towse TF, Walker RC, Avison MJ, Welch EB. “Detection of brown adipose tissue in an adult human using fat-water MRI with validation by cold-activated PET”. In: *Proceedings of the 21st Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Salt Lake City 2013.

Lundström E, **Berglund J**, Johansson L, Bergsten P, Ahlström H, Kullberg J. “Water-fat imaging of supraclavicular brown and white adipose tissue at 1.5 T: initial results in healthy volunteers”. In: *Proceedings of the 21st Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Salt Lake City 2013.

Welch EB, Gifford A, **Berglund J**, Kullberg J, Paaske N, Schierup A-L, Pedersen EM, Avison MJ. “Quantitative Whole-Body Fat-Water MRI with R2* Estimation at 3 Tesla Using a Custom Tabletop for Multi-Station Parallel Imaging with a Single 16-Channel Surface Coil”. In: *Proceedings of the 21:st Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Salt Lake City 2013.

Gifford A, Kullberg J, **Berglund J**, Malmberg F, Coate KC, Williams PE, Cherrington AD, Avison MJ, Welch EB. “Cortical Bone Segmentation for Accurate Canine Body Composition Quantification using 3 Tesla Fat-Water MRI”. In: *Proceedings of the 21:st Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Salt Lake City 2013.

Berglund J, Ahlström H, Kullberg J. “Fat-water separation with triglyceride characterization – validation against gas-liquid chromatography”. *ISMRM workshop on Fat-Water Separation*, Long Beach (CA) 2012.

Berglund J, Kullberg J. “Fat-water separation & T_2^* estimation based on discrete whole-image optimization in 3D”. *ISMRM workshop on Fat-Water Separation*, Long Beach (CA) 2012.

Berglund J, Welch EB, Silver HJ, Niswender KD, Avison MJ, Kullberg J. “Whole-body 3D fat-water MRI – comparison between region growing & whole-image optimization at 3.0 T”. *ISMRM workshop on Fat-Water Separation*, Long Beach (CA) 2012.

Berglund J, Ahlström H, Kullberg J. “Fat-water separation with triglyceride characterization – analysis of the Cramér-Rao bounds”. *ISMRM workshop on Fat-Water Separation*, Long Beach (CA) 2012.

Berglund J, Ahlström H, Kullberg J. “Fat-water separation with triglyceride characterization – feasibility in vivo at 1.5 T & 3.0 T”. *ISMRM workshop on Fat-Water Separation*, Long Beach (CA) 2012.

Gifford A, **Berglund J**, Kullberg J, Towse TF, Avison MJ, Welch EB. “Preliminary Indication of Brown Adipose Tissue In Adult Humans Using Fat-Water MRI”. In: *Proceedings of the 20th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Melbourne 2012.

Björk M, **Berglund J**, Kullberg J, Stoica P. “Signal modeling and the Cramér-Rao bound for absolute magnetic resonance thermometry: feasibility in fat tissue”. In: *Proceedings of the 45th Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove (CA) 2011.

Berglund J, Ahlström H, Johansson L, Kullberg J. “Closed-form solution for the three-point Dixon method with advanced spectrum modeling”. In: *Proceedings of the 19th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Montreal 2011.

Welch EB, **Berglund J**, Kullberg J, Coate KC, Williams P, Cherrington A, Avison MJ. “Longitudinal Tracking of Adiposity in a Canine Model of Insulin Resistance”. In: *Proceedings of the 19th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Montreal 2011.

Welch EB, Avison MJ, Niswender KD, **Berglund J**, Kullberg J, Johansson L, Bruvold M, Silver HJ. “Test-Retest Reproducibility of Whole-body Fat Water Imaging at 3 Tesla Compared to DEXA”. In: *Proceedings of the 19th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Montreal 2011.

Berglund J, Johansson L, Ahlström H, Kullberg J. “Three-point Dixon method for whole-body water/fat imaging”. In: *Proceedings of the 18th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Stockholm 2010.

Berglund J, Ahlström H, Johansson L, Kullberg J. “Single-image water/fat separation”. In: *Proceedings of the 18th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Stockholm 2010.

Welch EB, **Berglund J**, Silver HJ, Niswender KD, Bruvold M, Kullberg J, Johansson L, Avison MJ. “Whole body fat water imaging at 3 Tesla using multi-echo gradient echo”. In: *Proceedings of the 18th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Stockholm 2010.

CONFERENCES

- JUNE 2023 *Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Toronto, Canada. **Oral presentation.**
- MAY 2017 *The 25th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Honolulu, Hawaii, USA. **Invited speaker.**
- MAY 2016 *The 24th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Singapore.
- FEBRUARY 2012 *ISMRM workshop on Fat-Water Separation*, Long Beach, California, USA. **Oral presentation. Second place: best poster award.**
- MAY 2011 *The 19th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Montréal, Canada. **Oral presentation.** Travel stipend from Anna Maria Lundins Stipendiefond.
- JULY 2010 *Brown Adipose Tissue and Human Obesity*, Stockholm, Sweden.
- MAY 2010 *The 18th Annual Meeting of the International Society of Magnetic Resonance in Medicine*, Stockholm, Sweden. **Oral presentation.**
- APRIL 2010 *IEEE International Symposium on Biomedical Imaging*, Rotterdam, Netherlands. Travel stipend from Anna Maria Lundins Stipendiefond.

COMMITTMENTS

Sings the tenor in male-voice choir *Orphei Drängar* since 2006, where I am also Concert Programme Editor. Secretary in parental cooperative *Barnhagen* 2016–2019. Editor of *Nationsguiden* (guide to Uppsala's student nations) 2005 & 2007. Wrote and arranged music and lead rehearsals for a small orchestra in student theatre *Linné – en klassiker* 2007. Arranged music and lead rehearsals for an amateur setting of the musical *Cabaret* 2006. Played drums in indie pop band *Smultronstället*. Had several positions at Smålands Student Nation in Uppsala, including: Pub worker, Journal Editor, PR responsible and Webmaster. Internal accountant in private housing cooperative Jorund in Uppsala 2010.

OTHER

Languages: Swedish (mother tongue), English (fluent).
Programming: C++, Python, Matlab, Git, Latex, Java.
MRI pulse sequence programming on Siemens, GE, and Philips systems.
Supervision: Doctoral student co-supervisor (Henric Rydén, 2017–2020)
Master Thesis supervisor (Jacob Westholm, fall 2023)
Master Thesis supervisor (Mio Liljeblad, spring 2023)
Master Thesis supervisor (Hadrien van Loo, fall 2016)
Master Thesis co-supervisor (Alexander Fyrdahl, spring 2016)
Peer review: *Magnetic Resonance in Medicine* (distinguished reviewer),
Journal of Magnetic Resonance Imaging, *NMR in Biomedicine*,
and *Proceedings of the ISMRM*
Awards: Winning team in 2012 ISMRM challenge
Patents: *A Method and Controller for Magnetic Resonance Imaging*
(GB2590492 A),
*Method and Device for Generating an Energy-Resolved X-Ray
Image with Adapted Energy Threshold* (EP 2951615 B1)