


# Mariam Andersson

Einar Hansens Esplanad 14/Igh 1205, Malmö, Sweden

[maande@dtu.dk](mailto:maande@dtu.dk) •  @AnderssonMariam • Born 13<sup>th</sup> February 1994 • ORCID ID 0000-0001-7181-3007

**Research Key Words:** Brain tissue, axons, white matter, 3D morphology, biophysical modelling, synchrotron radiation imaging, diffusion magnetic resonance imaging

## Academic Background

- 2021** **Postdoc:** Danish Research Centre for Magnetic Resonance
- 2021** **Phd.:** Danish Research Centre for Magnetic Resonance and DTU Compute, Tech. Uni. Denmark. Title: “*Multi-Modal Microstructural Imaging of Brain White Matter*”. Main supervisor: Assoc. Prof. Tim B. Dyrby.  
External Stay: April 2019 - July 2019 at École polytechnique fédérale de Lausanne (EPFL).
- 2017** **MSc. Physics:** Lund University, Sweden. Thesis title: “*Short-Wave Infrared Lidar on Atmospheric Aerosols and Insects*”
- 2015** **BSc. Physics.:** Lund University, Sweden. BSc thesis at the University of Melbourne: “*Feasibility of Implementing the PILATUS CdTe 300k Detector as a Real Time Gamma Camera in Intraoperative Medical Imaging*”

## Previous Employment

- 2016-2017** **Lund Municipality, Sweden,** Care and Welfare Alarm Administrator
- 2016-2017** **MAX IV Laboratory, Sweden,** Student Assistant
- 2014-2015** **Lund University, Sweden,** Supplemental Instruction Leader for 1<sup>st</sup> year Physics
- 2013-2014** **Forty-five Tutoring,** Tutor in International Baccalaureate (IB) Mathematics and Physics
- 2013-2014** **Rays – for excellence Research Summer School, Sweden** Organising Committee and Mentor

## Awards

- 2021** **Magna Cum Laude Award,** Int. Soc. for Magnetic Resonance in Medicine (ISMRM) conference.
- 2019-2021** **Trainee Stipend,** awarded three consecutive years (2019, 2020, 2021) for the ISMRM conference.
- 2018** **The Anders Wall Foundation, Sweden** 150.000 SEK Young Researcher Prize  
Annually awarded to 1-2 young Swedish researchers on the basis of their: passion and interest for research, scientific engagement, uniqueness, creativity, as well as high capacity and potential for personal development.
- 2017** **CINEMAXIII PhD Summer School,** Best Presentation
- 2017** **NOSA Aerosol Symposium 2017, Sweden.** Best Poster.
- 2012** **Research Science Institute Programme Admission, Massachusetts Institute of Technology (MIT),** Admission to the 6-week research programme was awarded as 1st prize in the Swedish Federation of Young Scientists’ National Science Fair.

## Student Supervision

Since starting the PhD, I have co-supervised three MSc students and one project student.

- 2021** (MSc thesis) **Oldouz Majidi,** Technical University of Denmark
- 2020** (MSc thesis) **Harald Løvenskjold Mortensen,** Technical University of Denmark
- 2019** (MSc thesis) **Katrine Forum Skodborg,** Technical University of Denmark
- 2019** (Project student) **Oscar Rindel Peulicke,** Technical University of Denmark

## Other Commitments

- 2018-2019** **Student Group Co-Chair,** Danish Research Centre for Magnetic Resonance
- 2017-2018** **Project Manager,** Stockholm International Youth Science Seminar, Swedish Federation of Young Scientists.
- 2016-2017** **International Coordinator,** Stockholm International Youth Science Seminar, Swedish Federation of Young Scientists.
- 2016-2017** **Co-Founder and Leader, Lund, Sweden** Friluftsförbundet Student (FFS) i Lund, Swedish Outdoor Association.

### Workshops and Invited Talks

- 2021 **The Centre for Quantification of Imaging Data from MAX IV Workshop.** Invited talk. Copenhagen, Denmark.
- 2020 **Dansk Selskab for Medicinsk Magnetisk Resonans (DSMMR) 2020 Meeting,** Oral Presentation. Copenhagen, Denmark.
- 2020 **LTS5, Signal Processing Laboratory, EPFL, Switzerland.** Invited Talk (virtual).
- 2019 **New Animal Models to Understand the Brain (NAMUB), 3rd Edition.** Invited talk. Tours, France.
- 2019 **Multi-Scale Modeling of the White Matter Neuroanatomy Workshop.** Invited talk. Montréal, Canada.
- 2019 **Research Laboratory for Stereology and Neuroscience, Bispebjerg Hospital,** Invited talk. Copenhagen, Denmark.
- 2019 **Department of Medical Radiation Physics, Malmö Hospital,** Invited talk. Malmö, Sweden.
- 2018 **Hvidovre Hospital Research Day.** Abstract and poster presentation. Copenhagen, Denmark.

### Peer-Reviewed Conference Abstracts and Presentations

**Andersson, M.,** Pizzolato, M., Kjer, HM., Lundell, H., Dyrby, T.B. (2021). *Feasibility of axon diameter estimation in complex fiber architectures by powder averaging of the diffusion MRI signal* in Proceedings of the 2021 ISMRM & SMRT Virtual Conference & Exhibition. **Oral presentation.**

Winther, S., **Andersson, M.,** Lundell, H., Dyrby, T. (2021). *Susceptibility-induced fiber orientation dependency of the DWI signal in white matter measured in ex vivo rat brain at 7 T* in Proceedings of the 2021 ISMRM & SMRT Virtual Conference & Exhibition.

**Andersson, M.,** Rafael-Patino, J., Kjer HM., Andersen Dahl, V, Pacureanu, A., Bech, M., BJORHOLM DAHL, A., Thiran, J-P., Dyrby, T.B. (2020). *The impact of axon orientation dispersion and 3D diameter variations on the transverse apparent diffusion coefficient* in Proceedings of the 2020 ISMRM & SMRT Virtual Conference & Exhibition. **Oral presentation.**

Winther, S., Lundell, H., **Andersson, M.,** Dyrby, T.B. (2020). *Orientation-dependent biases in powder averaging caused by inhomogeneous distributions of magnetic susceptibility in white matter* in Proceedings of the 2020 ISMRM & SMRT Virtual Conference & Exhibition.

**Andersson, M.,** Kjer HM., Rafael-Patino, J., Andersen Dahl, V, Pacureanu, A., Thiran, J-P., Bech, M., BJORHOLM DAHL, A., Dyrby, T. (2019). *Uncovering 3D Axonal Morphologies with Synchrotron Imaging: Impact on Microstructure Imaging with Diffusion MRI* in Proceedings of the ISMRM 27th Annual Meeting & Exhibition, 2019. **Oral presentation.**

Rafael-Patino, J., Yu, T., **Andersson, M.,** Andersen Dahl, V, Pacureanu, A., Thiran, J-P., Bech, M., BJORHOLM DAHL, A., Dyrby, T.B. (2019). *Phantoms for Diffusion Simulations: Multi-Objective Differential Evolution for Realistic Numerical (MODERN) Phantoms* in Proceedings of the ISMRM 27th Annual Meeting & Exhibition, 2019.

**Andersson, M.,** Kjer HM., Andersen Dahl, V, Bech, M., Pacureanu, A., BJORHOLM DAHL, A., Dyrby, T.B. (2018). *Using X-Ray Imaging to Visualise the 3D Architecture of White Matter* in Proceedings of the 69th Annual Conference of the Nordic Microscopy Society, 2018. **Invited talk.**

### Publications

**Andersson, M,** Pizzolato, M., Kjer, HM., Skodborg Forum, K., Lundell, H., Dyrby, T.B., (2021). *Does powder averaging remove dispersion bias in diffusion MRI diameter estimates within real 3D axonal architectures?*. bioRxiv.

**Andersson, M.,** Kjer, HM., Rafael-Patino, J., Pacureanu, A., Pakkenberg, B., Thiran, J-P., Ptito, M., Bech, M., BJORHOLM DAHL, A., Andersen Dahl, V., Dyrby, T.B., (2020). *Axon morphology is modulated by the local environment and impacts the noninvasive investigation of its structure–function relationship*. Proceedings of the National Academy of Sciences, 117 (52) 33649-33659.

Peruzzi, N., Veress, B., Dahlin, L.B., Salditt, T., **Andersson, M.**, Eckermann, M., Frohn, J., Robisch, A-L., Bech, M., Ohlsson, B. (2020). 3D analysis of the myenteric plexus of the human bowel by X-ray phase-contrast tomography—a future method? *Scandinavian Journal of Gastroenterology*, 55:10, 1261-1267.

Brydegaard, M., Larsson, J., Török, S., Malmqvist, E., Zhao, G., Jansson, S., **Andersson, M.**, Svanberg, S., Åkesson, S., Laurell, F., Bood, J. (2018). Short-Wave infrared atmospheric schimpflug lidar. *EPJ Web Conf.*, 176.

### **Scientific Summary**

No. of citations (Google Scholar 13-10-2021): 38, No. of peer-reviewed journal articles: 2, No. of pre-prints: 1, No. of conference proceedings: 8.