Curriculum vitae with track record

Personal information

First name, Surname:	Mary M. (Molly) Maleckar		
Date of birth:	07.05.1979	Sex:	Female
Nationality:	USA		
Researcher unique identifier(s)	https://orcid.org/ - 0000-0002-7012-3853		
URL for personal website:	https://mmaleck.github.io/		

Education

Year	Faculty/department - University/institution - Country
2008	Ph.D. in Biomedical Engineering, Johns Hopkins University, USA

Positions - current and previous

Year	Job title – Employer - Country
2019-present	Research Professor, Simula Research Laboratory, Oslo, Norway
2017-2019	Director, Models and Theory, Allen Institute for Cell Science, Seattle, WA, USA
2015-2016	Senior Scientist, Simula Research Laboratory, Oslo, Norway
2012-2015	Director, Simula School of Research and Innovation, Oslo, Norway
2010-2012	Research Department Head, Simula Research Laboratory, Oslo, Norway
2010	Research Group Leader, Cardiac Modeling, Simula Research Laboratory, Oslo, Norway
2009	Postdoctoral Fellow, Cardiac Modeling, Simula Research Laboratory, Oslo, Norway

Grants and project management experience

Year	Project owner - Project - Role - Funder
2024-present	WP leader, SEARCH proposal for synthetic data in healthcare, emphasis on cardiovascular disease. Innovative Health Initiative, European Commission, 2024-2028.
2020-present	Technical Coordinator and Work Package Leader for SFI IV – 309762: PROCardio: Precision Health Center for optimized cardiac care, Research Council of Norway Center for Research-Based Innovation (2020-2028). Involves supervision of 2 postdoctoral fellows, 2 PhDs, 3 Master's students, and 4 interns.
2015-2018	Co-Principal Investigator and Work Package Leader for MI-RISK, funded by the Novo Nordisk Foundation. Collaboration with University of Copenhagen (Denmark) and Brigham and Women's Hospital (USA) aiming to find novel risk factors for sudden cardiac death in patients with myocardial infarction. "Risk factors for sudden cardiac death during acute myocardial infarction (MI-RISK)", Novo Nordisk Foundation.
2017-2019	The Allen Institute for Cell Science focuse on large, distributed, interdisciplinary, and team-based projects. As Director of Models and Theory, built and supervised an interdisciplinary team of 10 research scientists and engineers. Coordinated several multi-year studies, culminating in top-tier publications, as well as interface with clinical and commercial collaborators.
2015-2017	Training Coordinator, Head of the Supervisory Board, and Work Package Leader for the AFib-TrainNet (2015-9), funded from the Marie Skłodowska-Curie Actions as a European Training Network (ETN). The consortium involved 11 institutions from 8 European countries with 15 early stage researchers (ESR). This multi-disciplinary network aimed to find novel targets that could alleviate atrial fibrillation. Co-supervisor of two ESRs (Marcia Vagos and Ilse Van Herck).
2015-2016	Coordinator - SysAFib: Systems medicine for diagnosis and stratification of atrial fibrillation, ERA CoSysMed, European Commission and Research Council of Norway.
2014-2015	Coordinator, PREPARE2: Increased science awareness among youth, Simula School of Research and Innovation, PROFORSK, Research Council of Norway.

2012-2015	Oversight and management of all internal Simula School of Research and Innovation Initiatives, including trainee courses and professional development. Support of research and educational collaboration with the University of California, San Diego, which resulted in the current Simula-UiO-UCSD Research and PhD Training Collaboration (SUURPh), a long-term initiative which opened in June 2015 funded by the Norwegian Ministry of Research and Education. Development and direction of an ongoing flagship SUURPh summer school (SSCP) now in its 8th year.
2011-2012	Director for Simulation and Modeling, Center for Cardiological Innovation SFI II (2011-19), Oslo, Norway.

Supervision of students

Master's students	Ph.D. students	University/institution - Country
7	8	Oslo University - Norway

Services to the Scientific Community, selected.

Reviewing Editor, The Journal of Physiology, 2025 – present; Editorial Board, Frontiers in Physics, 2013 – present; Editorial Board, Bioelectricity, 2019-present; Reviewer for Computers in Biology and Medicine; Computational and Mathematical Methods in Medicine; PLOS Computational Biology; Heart Rhythm Journal; Scientific Reports (Nature Publishing); Frontiers Group.

Memberships of Scientific Societies

2016 – present Member, American Society for Cell Biology
2015-present Member, American Heart Association
2012-present Working Group on eCardiology, European Society of Cardiology
2011-present Working Group on Cellular Cardiac Electrophysiology, European Society of Cardiology
2011-present Member, Biophysical Society
2011-present Member, Scandinavian Physiological Society
2009 – present Member, American Association for the Advancement of Science
2009-present Member, Heart Rhythm Society

Other relevant professional experiences

Year	Description - Role
2020 – present	Member, Chan Zuckerberg Initiative, Open Science Initiative, Scientific Advisory Board
2021 – 2022	Chair, Chan-Zuckerberg Initiative Scientific Advisory Board
2019 – 2022	Member, Chan Zuckerberg Initiative, Single Cell Science, Scientific Advisory Board
2019 – present	Member, UW Center for Translational Muscle Research, External Advisory Board
2018 – 2020	Board Member, Chan-Zuckerberg Initiative Scientific Advisory Board
2012 – 2015	Board Member, Center for Cardiological Innovation, Oslo, Norway

Previous experience in collaborative research

M. Maleckar has an extensive history of interdisciplinary collaborative work and a strong current collaborative research program, including development, coordination, and leadership of international research and training initiatives e.g. the Simula – University of Oslo – University of California San Diego Doctoral Education and Research Programme (2014-present), the AFib-TrainNet (2016-19), an ITN network in which PI served as the Training Coordinator, and the Norwegian SFI program (currently a management team member for the ProCardio Centre for Innovation). Research collaborations have included and include intra- and inter-institutional, intersectoral (i.e. with clinicians and the pharmacological and medical device industries), interdisciplinary (e.g. with computer scientists as well as experimental investigators), and broad international collaboration. Current active collaborations (defined as current co-writing of funding proposals, co-supervision of trainees, co-writing of manuscripts and/or co-execution of research) include: Prof William Louch (Molecular Biology and Imaging, University of Oslo, NO), Drs. Kristina Haugaa and Thor Edvardsen

(Cardiology, Oslo University Hospital, NO), Prof. Thomas Jespersen (University of Copenhagen), Prof Jørgen Kanters (University of Copenhagen), Dr. Eigil Samset (GE Healthcare, Director of Cardiology Research), Prof Wayne Giles (Biophysics and Physiology, University of Calgary, AB), Prof Ali Mobasheri (Biophysics and Molecular Biology, University of Oulu, FI), Prof Natalia Trayanova (Johns Hopkins University, Baltimore MD, USA), and Profs Andrew McCulloch and Padmini Rangamani (Bioengineering and Mechanical Engineering, University of California, San Diego, USA).

Track record

I have been working in the field of computational cardiac simulation and modeling for over two decades. My work has helped to advance the field by furthering mechanistic insight into dangerous arrhythmia, by helping to translate the use of cardiac simulations from purely mechanistic studies of heart disease towards the creation of personalized and predictive heart models that can be used in clinical diagnosis and treatment planning, and by creating research links across sectoral, disciplinary, and institutional boundaries. I have co-authored ~85 journal articles and abstracts in both technical and clinical journals and conferences. My work has been cited ~2800 times. Google Scholar h-index=21; i-10 index=36.

Selected Recent Publications

1: G Monopoli, D Haas, A Singh, E Aabel, M Ribe, A Castrini, N Hasselberg, C Bugge, C Five, K Haugaa, N Forsch, V Thambawita, G Balaban**, MM Maleckar**. DeepValve: the first automatic detection pipeline for the mitral valve in Cardiac Magnetic Resonance imaging. Comp Med Biol, 2025. *Accepted.*
2. L Myklebust, G Monopoli, G Balaban, E Westrum Aabel, M Ribe, A Castrini, N Hasselberg, C Bugge, C Five, K Haugaa, **MM Maleckar**, Hermenegild Arevalo. Stretch of the papillary insertion triggers reentrant arrhythmia: an in silico patient study. Frontiers in Physiology 15, August 2024.
3. L Myklebust, **MM Maleckar**, H Arevalo. Fibrosis modeling choice affects morphology of ventricular arrhythmia in non-ischemic cardiomyopathy. Frontiers in Physiology 15, March 2024.
4: Ambre Bertrand, Carolyna Yamamoto, Giulia Monopoli, Thomas Schrotter, Lena Myklebust, Julie J Uv, Hermenegild J Arevalo, **Mary M Maleckar**. Augmentation of Cardiac Ischemic Geometry for Improving Machine Learning Performance in Arrhythmic Risk Stratification. Computational Physiology: Simula Summer School 2023. P. 39-53. Springer Nature Switzerland. 2023.
5: Sridhar AR, Chen ZH, Mayfield JJ, …, **Maleckar MM**, **Boyle PM**. Identifying Risk of Adverse Outcomes in COVID-19 Patients via Artificial Intelligence-Powered Analysis of 12-Lead Intake Electrocardiogram. Cardiovasc Digit Health J. 2021 Dec 31. doi: 10.1016/j.cvdhj.2021.12.003.
6: Maleckar MM, Myklebust L, Uv J, …, **Arevalo H**. Combined *In-silico* and Machine Learning Approaches Toward Predicting Arrhythmic Risk in Post-infarction Patients. Front Physiol. 2021 Nov 8;12:745349.
7: Thambawita V, Isaksen JL, Hicks SA, …, **Maleckar MM**, Halvorsen P, **Riegler MA**, **Kanters JK**. DeepFake electrocardiograms using generative adversarial networks are the beginning of the end for privacy issues in medicine. Sci Rep. 2021 Nov 9;11(1):21896.
8: Hicks SA, Isaksen JL, Thambawita V, …, Halvorsen P, **Maleckar MM**, **Riegler MA**, **Kanters JK**. Explaining deep neural networks for knowledge discovery in ECG analysis. Sci Rep.2021 May 26;11(1):10949
9: Tveito A, Jæger KH, **Maleckar MM**, Giles WR, Wall S. Computational translation of drug effects from animal experiments to human ventricular myocytes. Sci Rep. 2020 Jun 29;10(1):10537.
10: Ounkomol C, Seshamani S, **Maleckar MM**, Collman F, Johnson GR. Label-free prediction of 3D fluorescence images from transmitted-light microscopy. Nat Methods. 2018 Nov;15(11):917-920.

Awards

- Visiting Scholar Fellowship, The Alan Turing Institute, London, U.K., 2022-3
- Expert Advisor Policy Fellowship, The Research Council of Norway Brussels Office, 2014
- IS-BILAT mobility fellowship, Simula Research Laboratory/ University of California San Diego, Oslo, Norway / San Diego, USA, 2012-2013
- Co-founder of SUURPh program and Summer School in Computational Physiology, 2014-present
- Top 10 women in technology Norway, 2011

Selected Invited Presentations

Maleckar MM. A new generation: approaches for synthetic ECG. ECGi Summit, 2025, Krakow, Poland, June 11th, 2025.

Maleckar MM. New in-silico models and data-driven methods for valvular heart disease. Cardiac Physiome Meeting 2024, Freiburg, Germany. September 14th, 2024.

Maleckar MM. Digital twins for cardiac multiphysics: work at Simula Research Laboratory. Avicenna Alliance Webinar keynote. August 19th, 2023.

Maleckar, MM. Heart Rhythm Society Annual Meeting 2023, New Orleans, LA. Using Simulations in Conjunction With Machine Learning for Clinical Applications. May 21st, 2023.

Maleckar MM. WCCM-APCOM YOKOHAMA 2022, Machine Learning for Cardiac Modelling and Simulation. July 31, 2022. Keynote presentation.

Maleckar MM. Label-free imaging and novel generative models. Cardiac Arrhythmia Mechanisms Gordon Research Conference. April 1-4, 2019. Il Ciocco, Italy.

Maleckar MM. Stem cell organization using label-free imaging and a novel generative model. Biophysical Society Annual Meeting Computational Biology Platform. February 18th, 2018. BPS 2018, San Francisco, CA.

Maleckar MM. Capturing variance: integrating a moving target. Building the Cell 2017 Subgroup Meeting, December 2nd, 2017, ASCB, Philadelphia, PA.

Maleckar MM. Putting the pieces together: Towards supplementing sparse clinical data with multi physics simulation Foundation Teofilo Rossi di Montelera Forum 2015, December 6-9, 2015, Lugano, Switzerland.

Maleckar MM. How many ionic models do we need for modelling of the atria? Atrial Signals 2015, Karlsruhe, Germany, 22.-24. October.

Maleckar MM. Patient-specific modeling: how good do we have to be? Foundation Teofilo Rossi di Montelera Forum 2013, December 1-3, 2013, Lugano, Switzerland.