Curriculum Vitae

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Personal summary

From May 2019 to May 2020 I will also be a part time visiting researcher at the Healey Lab working with computational tools for "heart-on-chip" systems.

In October 2017 I started as a Research Engineer at Simula Research Laboratory in the department for Scientific Computing, and will work with development of computational modeling tools primarily with application in electrophysiology.

Before I started as a Research Engineer I was a PhD student in the Cardiac Modelling group in the department for Scientific Computing, also at Simula Research Laboratory. In my PhD I worked with patient specific models of the cardiac mechanics, and defended it at January 17th 2018.

I graduated in 2014 after finishing a joint master degree in Applied and Engineering Mathematics at NTNU in Trondheim and DTU in Copenhagen. My fields of interests are mathematical modelling, geometric modelling and image processing. In my master thesis I studied methods for image classification of ultrasound images based on convolutional neural networks.

Education

- 2014 - 2017: PhD Scientific Computing, Simula Research Laboratory and University of Oslo, Oslo (Norway)

  Title: Patient-specfic computational modeling of cardiac mechanics.

- 2012 - 2014: MSc. Applied and Engineering Mathematics, Nordic Master in Applied and engineering mathematics(N5TeAM), Trondheim (Norway), Copenhagen (Denmark)

  Joint master program with first year at DTU in Copenhagen, and second year at NTNU in Trondheimm. Degree from NTNU Trondheim: Master of Science in Applied and Engineering Mathematics. Degree DTU Copenhagen: Master of Science in Engineering. Master thesis title: Wavelet Techniques in Medical Imaging. Final Grade A (Best: A Average: A Worst: C)

Transcript NTNU

Transcript DTU

- 2010 – 2012 MSc. Physics and Mathematics, NTNU, Trondheim (Norway).

  Specialized in industrial mathematics. Switched to N5TeAM after finishing first year at industrial mathematics.

- 2006 – 2008: Sergeant, Army Officer Candidate School, Skjold (Norway).

  Two-year officer school in the engineering battalion. Final Grade C (Best: A Average: B Worst: C)

Technical

- Expert: Python, Unix, LaTeX, FEniCS, Linux,
- Intermediate: Docker HTML, Bash, Matlab, Git, Jupyter, VTK, Gmsh, Paraview, C++, C, JavaScript
- Basic: CUDA CSS, C#, Kubernetes, R, Swig

Employment

- 2019-present: Research Scholar, UC Berkeley Biengineering

  Visiting research at the Healey Lab working with computational tools for "heart-on-chip" systems.

- 2017-present: Research Engineer, Simula Research Laboratory

  Development of high performace copmuitational software tools and mathematical models for the study of Human Induced Pluripotent Stem Cells (hiPSC)

- 2016: Corrector, University of Oslo

  Correcting assignments for master students in the course [INF4331, Problem solving with high level languanges] (https://www.uio.no/studier/emner/matnat/ifi/INF4331/index-eng.html)

- 2009 – 2013 Teaching Assistant, Norwegian University of Science and Technology, Trondheim.

  Assisted groups of 25 students in Calculus 1, Calculus 2, Calculus 3, Statistics and Information Technology.

- 2012 – 2012 Summer Intern, Energy Micro, Oslo, Norway.

  Porting the Energy Micro University program to Giant Gecko Starter Kit. Improving code and embedded documentation as well as look and usability of the doxygen generated documentation for all kits.

- 2011 – 2012 Mentor, ENT3R NTNU, Trondheim.

Responsibility for a class of 20 students from high school. Help students with mathematics, and motivate them for further education in science.

- 2011 – 2011 Summer Intern, Norwegian Defence Research Establishment (FFI), Kjeller.

  Created a GUI in Visual C# and Matlab to read the log files, and use this information to calculate and plot the desired data.

- 2007 - 2008: Squad leader, Engineering Batalion, Norwegian Army

  Responsibilities: Educate soldiers with background in construction, and lead small construction projects.

Activities

- 2015-2016 Member of Excepert Committee, Nokut, Oslo.

  Responsible for evaluating an application for accreditation of a PhD program at Bergen university college together with three other experts. Report

- 2011-2012 Business Manager, ENT3R NTNU, Trondheim.

  Responsible for organizing student events and invite companies to these events.

- 2011-2012 Chairman for the Business Committee, Nabla - Applied Physics and Mathematics student association , Trondheim.

  Overall responsibility for hosting business presentations, publishing catalogue with summer jobs, and connect students to the industry.

- 2011-2012 Member of the Business Committee, Nabla - Applied Physics and Mathematics student association , Trondheim.

  Responsible for contacting 20 companies and arrange business presentations.

Scholarships and Awards

- Abel Scholarship 2012

  Given to mathematics students that exchange abroad.

- Fullbright Scholarship

  My initial plan was to exchange to US and therefore I also applied for the Fullbright scholarship. I was awarded this scholarship but had to decline when I decided that I wanted to go to Denmark instead.

- Norplus scholarship

  Given to exchange students in the nordic countries.

- Erasmus scholarship

  Given to exchange students in Europe.

Thesis

- Finsberg, H.N., 2017. Patient-Specific Computational Modeling of Cardiac Mechanics. Series of dissertations submitted to the Faculty of Mathematics and Natural Sciences, University of Oslo. PDF
- Finsberg, H.N., 2014. Wavelet Techniques in Medical Imaging: Classification of UltraSound Images using the Windowed Scattering Transform (Master's thesis, Institutt for matematiske fag). PDF

Publications

- Balaban, G., Finsberg, H., Funke, S., Håland, T.F., Hopp, E., Sundnes, J., Wall, S. and Rognes, M.E., 2018. In vivo estimation of elastic heterogeneity in an infarcted human heart. Biomechanics and modeling in mechanobiology, pp.1-13. DOI PDF
- Finsberg, H., Xi, C., Tan, J.L., Zhong, L., Genet, M., Sundnes, J., Lee, L.C. and Wall, S.T., 2018. Efficient estimation of personalized biventricular mechanical function employing gradient-based optimization. International journal for numerical methods in biomedical engineering, p.e2982. DOI PDF CODE
- Finsberg, H., Balaban, G., Ross, S., Håland, T.F., Odland, H.H., Sundnes, J. and Wall, S., 2018. Estimating cardiac contraction through high resolution data assimilation of a personalized mechanical model. Journal of computational science, 24, pp.85-90. DOI PDF CODE
- Balaban, G., Finsberg, H., Odland, H.H., Rognes, M.E., Ross, S., Sundnes, J. and Wall, S., 2017. High-resolution data assimilation of cardiac mechanics applied to a dyssynchronous ventricle. International journal for numerical methods in biomedical engineering, 33(11), p.e2863. DOI PDF CODE

Conference proceedings and preprints

- Finsberg, H., Balaban, G., Rognes, M.E., Sundnes, J. and Wall, S., Patient-specific computational modeling of cardiac biomechanics via gradient based data assimilation, 8th World Congress of Biomechanics, Dublin, Ireland, PDF
- Finsberg, H., Aalen, J., Larsen, C. J., Remme E., Sundnes, J. Smiseth O. A, and Wall, S., Assessment of regional myocardial work through adjoint-based data assimilation, International Conference on Computational Science and Engineering, Oslo, Norway PDF
- Finsberg, H., Xi, C., Tan, J.L., Zhong, L., Sundnes, J., Lee, L.C. and Wall, S.T.„ Mechanical Analysis of Pulmonary Hypertension via Adjoint based data assimilation of a Finite Element model, SB3C2017 Summer Biomechanics, Bioengineering and Biotransport ConferenceAt: Tucson, AZ, USA PDF
- Finsberg, H., Balaban, G., Ross, S., Odland, H.H., Sundnes, J. and Wall, S., Personalized Cardiac Mechanical Model using a High Resolution Contraction Field, Virtual Physiological Human 2016 conference, Amsterdam, Netherland PDF
- Finsberg, H., Balaban, G., Ross, S., Odland, H.H., Sundnes, J. and Wall, S., Personalization of a Cardiac Computational Model using Clinical Measurements, 28th Nordic Seminar on Computational Mechanics, Tallinn, Estonia PDF
- Finsberg, H., Luybarskii, Y., Growth of entire functions via Borel transform, TMA4500 Specialization project, 2013 DOI PDF

Posters

- Geilo Winter School: Scientific Visualization, 2016 PDF
- Summer Biomechanics, Bioengineering, and Biotransport Conference (SB3C), Tucson, AZ 2017 PDF
- The Heart by Numbers: Integrating Theory, Computation and Experiment to Advance Cardiology, Berlin 2018 PDF

PhD Defence

- PhD defence, Patient-Specific Computational Modeling of Cardiac Mechanics 17.01.18, Oslo, Norway PDF
- PhD trial lecture, How do the mechanics and structure of the heart matter in regard to patient-specific cardiac modelling? 17.01.18, Oslo, Norway PDF

Conference talks

- Assessment of regional myocardial work through adjoint-based data assimilation, International Conference on Computational Science and Engineering 2017, Oslo Norway, *In memory of Hans Petter Langtangen* PDF
- Optimization of a Spatially Varying Cardiac Contraction parameter using the Adjoint Method, FEniCS Conference 2016, Oslo, Norway, PDF
- What are all these models, and do we really need them? - Translating cardiac mechanical modeling into clinical applications, CCI Journal Club, Oslo University Hospital PDF
- Patient Constrained Ventricular Stress Mapping, MALT Conference, Lugano, Switzerland, 2015, PDF
- Personalization of a Cardiac Computational Model using Clinical Measurements, 28th Nordic Seminar on Computational Mechanics, Tallin, Estonia, 2015, PDF

References

Available on request.