DennisMadsen

MedTech Entrepreneur / Medical Computer Vision Researcher

Contact

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Youtube Channel

Languages

Danish - Native
English - Proficient
German - B1/B2

Skills

♥ Scala, ♥ Python
C, C++, SQL, VHDL
Matlab, Java
LaTeX
CSS, JavaScript & HTML
Web frameworks:
Django, Web2py, Flask

Experience

2023–Now **Dentexion GmbH** Zug, Switzerland
Founder & CEO - Building an AI powered cloud-platform for dentists.

2023–Now **University of Zürich** Zürich, Switzerland
Postdoctoral Researcher - BRIDGE Proof-of-Concept fellow.

2021–2023 **University of Basel** Basel, Switzerland
Postdoctoral Researcher - Lecturing the course *Pattern recognition* and main responsible for the exercises. Working on automatic diagnostic system for the dentist industry.

2017–2021 **University of Basel** Basel, Switzerland
Research Assistant / PhD Candidate - Lecturing the course *Pattern recognition* and main responsible for the exercises.

2016–2019 **Capana** Remote from Switzerland
Consultant - Development projects and tool testing for Siemens Wind Power.

2014–2015 **Siemens Wind Power** Brande, Denmark
Embedded Software Support Engineer - Work task automation of manual procedures; software updates and support of Siemens Wind Turbine Controllers.

2009–2014 **Microdevelopment** Herning, Denmark
Owner - Developing an electronic speed tables for use in historical reliability races. Responsible for software development, web design and customer contact.

2013–2013 **Litepoint** Sunnyvale, California, USA
Electronic Engineer Intern - Test system interface using a local web server.

2006–2014 **KK-Electronic** Ikast, Denmark
Embedded Software Engineer Student / Electronic Industrial Technician Trainee
HW design, embedded SW (c), documentation, prototyping (mechanic, PCB, test scripting), HW coding (VHDL).

Certificates

2023 **Innosuisse Business Creation MEDTECH** Basel, Switzerland

Courses

2021 **Project Management – A Toolbox for Scientists** University of Basel

2021 **Innosuisse Start-up Training: Business Concept (Module 2)** University of Basel

Education

2017–2021 **PhD Computer Science** Basel University, Switzerland
Thesis: A Probabilistic Surface Registration Framework with Applications to Partial Data Analysis - Model-based medical image analysis with focus area on registration and modelling using partial data as well as uncertainty in surface reconstruction.
The highest grade was achieved for my thesis (Summa cum laude).

2015–2017 **MSc Computer Science** Basel University, Switzerland
Thesis: Craniofacial modelling by combining statistical models of the face and the skull - Combining independent statistical shape models.
The highest grade was achieved for my thesis (6.0).

2010–2014 **BSc Electronic Design Engineering** Aarhus University, Denmark
Thesis: Power quality analysis of wind turbines - Harmonic frequency analysis prototype implementation in a Texas Instrument DSP.
The highest grade was achieved for my thesis (12).

2009–2010 **Pre-admission course** Aarhus University, Denmark

2005–2009 **Electronic Industrial Technician** (elektronikfagtekniker) Mercantec Viborg, Denmark

Awards

2018 **Best Presentation Award** Favignana, Sicily, Italy
Recognition of the best poster presentation given at the Medical Imaging Summer School (MISS)
`http://iplab.dmi.unict.it/miss/posters.htm`

2018 **2nd Best Presentation Award** ETH Zürich, Switzerland
Recognition of the second best presentation given at the EXCITE Summer School on Biomedical Imaging
`http://www.excite.ethz.ch/education/summer-school.html`

Hackathons

2017 **Price Winner** CopenHacks, Copenhagen Hackathon
Project: Social-Eyes - Enabling visually impaired persons to easily share images on social media.
`https://www.youtube.com/watch?v=1l4iiC9J9to`

2016 **Winner of - main sponsor (Logitech) challenge** LauzHack, Lausanne Hackathon
Project: GamEmotion - analysis of gamers emotions while playing, and a website to evaluate the data stream.
`https://www.youtube.com/watch?v=3CO_xql0jyo`

2016,17,18 **HackZürich Participant** Europe's largest hackathon

Publications

Books

A Probabilistic Surface Registration Framework with Applications to Partial Data Analysis
Dennis Madsen (Doctoral Thesis)
University of Basel, 2021

International peer-reviewed conferences/proceedings

Sequential gaussian process regression for simultaneous pathology detection and shape reconstruction
Dana Rahbani, Andreas Morel-Forster, Dennis Madsen, Jonathan Aellen, Thomas Vetter
International Conference on Medical Image Computing and Computer-Assisted Intervention, 2021

A closest point proposal for MCMC-based probabilistic surface registration
Dennis Madsen, Andreas Morel-Forster, Patrick Kahr, Dana Rahbani, Thomas Vetter, Marcel Lüthi
European Conference on Computer Vision (ECCV), 2020

Learning Shape Priors from Pieces
Dennis Madsen, Jonathan Aellen, Andreas Morel-Forster, Thomas Vetter, Marcel Lüthi
International Workshop on Shape in Medical Imaging (ShapeMi), 2020

Probabilistic joint face-skull modelling for facial reconstruction
Dennis Madsen, Marcel Lüthi, Andreas Schneider, Thomas Vetter
Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2018

International peer-reviewed workshops/proceedings

Dennis Madsen, Thomas Vetter, Marcel Lüthi. "Probabilistic surface reconstruction with unknown correspondence". In: *Uncertainty for Safe Utilization of Machine Learning in Medical Imaging and Clinical Image-Based Procedures (UNSURE)*. Springer, Cham, 2019, pp. 3–11.

Dana Rahbani, Andreas Morel-Forster, Dennis Madsen, Marcel Lüthi, Thomas Vetter. "Robust registration of statistical shape models for unsupervised pathology annotation". In: *Large-Scale Annotation of Biomedical Data and Expert Label Synthesis and Hardware Aware Learning for Medical Imaging and Computer Assisted Intervention (LABELS)*. Springer, Cham, 2019, pp. 13–21.

Other

GiNGR: Generalized Iterative Non-Rigid Point Cloud and Surface Registration Using Gaussian Process Regression
Dennis Madsen, Jonathan Aellen, Andreas Morel-Forster, Thomas Vetter, Marcel Lüthi
arXiv preprint arXiv:2203.09986 *(2022). 2022*

Software

- GiNGR (Non-rigid registration framework), *Main developer (based on PhD. Thesis)*
- Scalismo (Library for statistical shape modeling), *Contributor*
- Scalismo-UI (Visualization of statistical shape modeling), *Contributor*