

# DennisMadsen

Medical Computer Vision



## 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

- 2021–Now **University of Basel** Basel, Switzerland  
*Postdoctoral Researcher* - Lecturing the course *Pattern recognition* and main responsible for the exercises.
- 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).

## 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

## publications

### International peer-reviewed conferences/proceedings

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.

## awards

- |      |   |                          |
|------|---|--------------------------|
| 2018 | <b>Best Presentation Award</b>  | Favignana, Sicily, Italy |
|      | Recognition of the best poster presentation given at the Medical Imaging Summer School (MISS)                               |                          |
|      | <a href="http://iplab.dmi.unict.it/miss/posters.htm">http://iplab.dmi.unict.it/miss/posters.htm</a>                         |                          |
| 2018 | <b>2nd Best Presentation Award</b>  | ETH Zürich, Switzerland  |
|      | Recognition of the second best presentation given at the EXCITE Summer School on Biomedical Imaging                         |                          |
|      | <a href="http://www.excite.ethz.ch/education/summer-school.html">http://www.excite.ethz.ch/education/summer-school.html</a> |                          |

## hackathons

- |            |   |                                  |
|------------|---|----------------------------------|
| 2017       | <b>Price Winner</b>   | CopenHacks, Copenhagen Hackathon |
|            | Project: Social-Eyes - Enabling visually impaired persons to easily share images on social media.           |                                  |
|            | <a href="https://www.youtube.com/watch?v=1l4iiC9J9to">https://www.youtube.com/watch?v=1l4iiC9J9to</a>       |                                  |
| 2016       | <b>Winner of - main sponsor (Logitech) challenge</b>  | LauzHack, Lausanne Hackathon     |
|            | Project: GamEmotion - analysis of gamers emotions while playing, and a website to evaluate the data stream. |                                  |
|            | <a href="https://www.youtube.com/watch?v=3C0_xq10jyo">https://www.youtube.com/watch?v=3C0_xq10jyo</a>       |                                  |
| 2016,17,18 | <b>HackZürich Participant</b>   | Europe's largest hackathon       |