Desmond Kabus

Personal Data

pronunciation: /dɛzmənd kaːbʊs/ 'DEZ-mint KAH-boos'

date and place of birth: 29 December 1994, Bochum, Germany

citizenship: German

civil status: single

Education

since 02/2021: joint PhD in Mathematics of Cardiac Arrhythmias

- *KU Leuven campus Kortrijk*, Belgium:
  group: HeartKOR, Mathematics of Cardiac Arrhythmias, Prof. Hans Dierckx
- *Leids Universitair Medisch Centrum*, Leiden, the Netherlands:
  group: Laboratory of Experimental Cardiology, Prof. Daniël Pijnappels

  keywords: cardiology, computational physics, optimisation, machine learning, tissue models, optical voltage mapping, data-driven, human immortalised atrial myocytes (hiAM)

06/2022: *Université de Bordeaux*, France
summer school in Cardiac Electrophysiology

institute: *l'institut des maladies du rythme cardiaque* (LIRYC)

keywords: cardiology, electrophysiology, biophysics, hemodynamics, diagnostics, imaging, signal processing, image segmentation

10/2016 – 09/2019: *Ruhr-Universität Bochum*, Germany
Master of Science in Physics with distinction (overall grade 1.0)
major: plasma physics, minor: computational physics, machine learning

title of master's thesis: *'Analysis of Parametric Level Set Functions for the Representation of Geometry in the Optimal Control of Reaction-Diffusion Systems'*

keywords: cardiology, bi- and mono-domain description of muscle tissue, computational physics, optimisation, machine learning, solution of inverse problems, adjoint state method, finite differences

institute: Theoretical Physics I (Computational Plasma Physics), Prof. Dr. Rainer Grauer

08/2015 – 01/2016: *Stockholms Universitet*, Sweden
semester abroad in Sweden funded by an ERASMUS grant

10/2013 – 09/2016: *Ruhr-Universität Bochum*, Germany
Bachelor of Science in Physics (overall grade 1.8)

title of bachelor's thesis: *'Comparison of Phase Field and Interpolation Methods for the Representation of Geometries in the Numerical Analysis of Reaction-Diffusion Systems'*

institute: Theoretical Physics I (Computational Plasma Physics), Dr. Jürgen Dreher

keywords: cardiology, bi- and mono-domain description of muscle tissue, computational physics, finite differences, methods for enforcement of boundary conditions

2013: *Landfermann-Gymnasium Duisburg*, Germany
Allgemeine Hochschulreife (Abitur) – general qualification for university entrance (overall grade 1.2)

Publications

2022: *'Numerical methods for the detection of phase defect structures in excitable media'*
Desmond Kabus, Louise Arno, Lore Leenknegt, Alexander V. Panfilov and Hans Dierckx.
PLOS ONE 17(7): e0271351. https://doi.org/10.1371/journal.pone.0271351

Conference Presentations

05/2023: *SIAM conference on Applications of Dynamical Systems* in Portland, Oregon, United States

type of contribution: symposium talk (forthcoming)

04/2022: Conference of the *European Heart Rhythm Association* (EHRA) in Copenhagen, Denmark

title: *'Centres of spiral waves can be detected as phase defect lines in optical voltage mapping data and numerical simulations'*

type of contribution: scientific poster

co-authors: Louise Arno, Lore Leenknegt, Niels Harlaar, Sven O. Dekker, Alexander V. Panfilov, Antoine A.F. de Vries, Daniël Pijnappels, Hans Dierckx

Teaching Experience

since 2022: *KU Leuven campus Kortrijk*, Belgium
tutor for the lecture *Partial Differential Equations*

11/2021 – 01/2022: *KU Leuven campus Kortrijk*, Belgium
project manager for the engineering course *Problem Solving and Development*

since 2019: *Segelsport-Interessentengemeinschaft an der Ruhr-Universität Bochum*, Germany
sailing instructor for internal waters

04/2019 – 08/2019: *Ruhr-Universität Bochum*, Germany
tutor for the lecture *Theoretical Mechanics*

04/2016 – 08/2016: *Ruhr-Universität Bochum*, Germany
manager of an experimental project of physics students

04/2016 – 08/2016: *Ruhr-Universität Bochum*, Germany
instructor for a physics lab course for geoscientists

04/2015 – 08/2015: *Ruhr-Universität Bochum*, Germany
tutor for the lecture *Electromagnetism and Optics*

10/2014 – 02/2015: *Ruhr-Universität Bochum*, Germany
tutor for the lecture *Physics for Biologists II*

10/2014 – 02/2015: *Ruhr-Universität Bochum*, Germany
tutor for the lecture *Mechanics and Thermodynamics*

Work Experience

01/2020 – 02/2020: *Talley's Blenheim*, New Zealand
aquacultural work

10/2019 – 12/2019: *Far North Blueberries*, New Zealand
agricultural work

03/2017 – 04/2018: *Nachhilfe-Kolleg Bochum-Linden*, Germany
private tutor in mathematics and physics

10/2012 - 11/2012: *mse Software GmbH Hattingen*, Germany
student internship at a technology company

07/2011: *Kosmos-Apotheke Bochum*, Germany
student internship at a pharmacy

Cultural Experience

09/2019 – 04/2020: *working holiday* in New Zealand
exchange of culture and language

11/2010, 03/2011: *Russell High School*, Kansas, USA
exchange of culture and language with a school in the US state of Kansas

Languages

German: native speaker

English: proficient in speech and writing (reference level C2 in accordance with CEFR)

Dutch: intermediate knowledge (reference level B1 in accordance with CEFR)

Swedish: elementary knowledge

Latin: proficiency certificate awarded in 07/2010

Classical Greek: proficiency certificate awarded in 07/2012

Technical Skills

programming languages:

- proficient: `C`, `C++`, `Python`, `Myokit`, `Lua`, `LaTeX`, `(ba)sh`, `HTML`, `CSS`, `JavaScript`
- basic skills: `Rust`, `C#`, `Matlab`, `Haskell`, `Java`

software: GNU/Linux, Git, OpenMP, ParaView, iRODS, Windows, Office

Hobbies

video game design, hiking, sailing, kayaking, rowing, travelling

Leiden, 29 August 2023