

Daan Camps

PHD · COMPUTER SCIENCE · APPLIED MATHEMATICS

Wipstraat 64, 2590 Berlaar, BELGIUM

☎ (+32) 0476 74 68 61 | ✉ daancamps@gmail.com | 🏠 campsd.github.io | 📷 campsd | 🌐 campsd

Education

KU Leuven (University of Leuven)

PHD IN COMPUTER SCIENCE

Leuven, Belgium

Sep. 2015 - Sep. 2019

- Thesis: 'Pole swapping methods for the eigenvalue problem — Rational QR algorithms'.
- Research in numerical linear algebra with a strong focus on eigenvalue problems.
- Supervisors: Prof. R. Vandebril, Prof. K. Meerbergen.

KU Leuven (University of Leuven)

M.SC.ENG. IN MATHEMATICAL ENGINEERING

Leuven, Belgium

Sep. 2011 - Jun. 2013

- Thesis: 'Epileptic seizure monitoring using tensor decomposition techniques'.
- Supervisors: Prof. L. De Lathauwer, Prof. S. Van Huffel.

KU Leuven (University of Leuven)

M.SC. IN ASTRONOMY AND ASTROPHYSICS

Leuven, Belgium

Sep. 2009 - Sep. 2011

- Thesis: 'Herschel/PACS observations of water in the carbon-rich AGB star V Hya'.
- Supervisor: Prof. L. Decin.

UHasselt (University of Hasselt)

B.SC. IN PHYSICS

Hasselt, Belgium

Sep. 2006 - Jun. 2010

Work Experience

KU Leuven

SCIENTIFIC COLLABORATOR

Leuven, Belgium

Sep. 2019 - Oct. 2019

- Completing research from PhD project.

KU Leuven

TEACHING ASSISTANT

Leuven, Belgium

Sep. 2015 - Jun. 2019

- Guided exercise sessions for courses on numerical modeling and approximation, numerical mathematics.
- Mentor of two master student projects.

IPCOS NV

PROJECT ENGINEER IN DIGITAL OILFIELD TEAM

Leuven, Belgium

Aug. 2013 - Sep. 2015

- Deployment and maintenance of upstream production monitoring models based on real-time process data.
- Development and deployment of new data-driven pipeline leak detection models.
- Customer-oriented role: presenting on-site training sessions and providing end user support.

Language Skills

Dutch Native
English Fluent
French Moderate

Skills, Competencies & Training

Programming skills	Python, Fortran, Matlab, C/C++, OpenMPI, OpenCV, LAPACK/BLAS, VB
Computer skills	Latex, Microsoft Office
Research competencies	Numerical linear algebra, Eigenvalue problems, Tensor decomposition techniques <ul style="list-style-type: none">• OpenMPI (ICTS, 2018)
Formal training	<ul style="list-style-type: none">• Fundamentals of Machine Learning (SOCN Graduate School, 2018)• Low-Rank Tensor Techniques (Hausdorff School, 2016)

Extracurricular Activity

PhDays VZW

BOARD MEMBER

Leuven, Belgium

Jan. 2016 - Jun. 2019

- Organization of PhDays: yearly social meeting of PhD students in computational sciences of Flanders (BE) and The Netherlands.

University Handball Team

PLAYER & TRAINER IN 2012-2013

Leuven, Belgium

Sep. 2009 - Jun. 2013

- Participation in national competition among Belgian universities.
- Weekly training sessions at introductory and advanced level.

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MEMBER & BOARD MEMBER IN 2008-2009

Hasselt, Belgium

Sep. 2007 - Jun. 2009

- Student organization for students in mathematics, physics and informatics at UHasselt organizing a variety of social events.

Publications

- 2019 **On pole-swapping algorithms for the eigenvalue problem**, Camps D., Mach T., Vandebril R., Watkins D. S., Submitted to SIAM J. Matrix Anal. Appl. arXiv preprint arXiv:1906.08672
- 2019 **A multishift, multipole rational QZ method with aggressive early deflation**, Camps D., Meerbergen K., Vandebril R., Submitted to SIAM J. Matrix Anal. Appl. arXiv preprint arXiv:1902.10954, numa.cs.kuleuven.be/software/rqz
- 2019 **Swapping 2x2 blocks in the Schur and generalized Schur form**, Camps D., Mastronardi N., Vandebril R., Van Dooren P., J. Comput. Appl. Math. Available Online. DOI: 10.1016/j.cam.2019.05.022
- 2019 **A rational QZ method**, Camps D., Meerbergen K., Vandebril R., SIAM J. Matrix Anal. Appl. 40(3), 943–972. DOI: 10.1137/18M1170480, numa.cs.kuleuven.be/software/rqz
- 2019 **An implicit filter for rational Krylov using core transformations**, Camps D., Meerbergen K., Vandebril R., Linear Algebra and its Applications, DOI: 10.1016/j.laa.2018.09.021
- 2014 **Block term decomposition for modelling epileptic seizures**, Hunyadi B., Camps D., Sorber L., Van Paesschen W., De Vos M., Van Huffel S., De Lathauwer L., EURASIP Journal on Advances in Signal Processing, DOI: 10.1186/1687-6180-2014-139

Talks

Berkeley Lab Seminar

POLE SWAPPING METHODS FOR THE EIGENVALUE PROBLEM – RATIONAL QR ALGORITHMS

Berkeley, USA

Sep. 2019

ICIAM Conference

POLE SWAPPING METHODS FOR THE EIGENVALUE PROBLEM – RATIONAL QR ALGORITHMS

Valencia, Spain

Jul. 2019

ETNA25 Conference

APPROXIMATE INVERSE-FREE RATIONAL KRYLOV METHODS AND THE LINK WITH FOM AND GMRES

Santa Margherita di Pula, Italy

May 2019

Numerical Analysis and Scientific Computation with Applications (NASCA) Conference

A RATIONAL QZ METHOD

Kalamata, Greece

Jul. 2018

SIAM Conference on Applied Linear Algebra

RQZ: A RATIONAL QZ METHOD FOR THE GENERALIZED EIGENVALUE PROBLEM

Hong Kong

May. 2018

NUMA Internal Seminar

RATIONAL MATRIX ALGORITHMS FOR THE GENERALIZED EIGENVALUE PROBLEM — ITERATIVE AND DIRECT METHODS

Leuven, Belgium

Oct. 2017

Conference of the International Linear Algebra Society (ILAS)

ON THE IMPLICIT RESTART OF THE RATIONAL KRYLOV METHOD — CHASING ALGORITHMS FOR POLYNOMIAL, EXTENDED AND RATIONAL KRYLOV

Iowa, USA

Jul. 2017

Conference of the International Linear Algebra Society (ILAS)

TOWARDS A COMPUTATIONAL EFFICIENT, IMPLICITLY RESTARTED RATIONAL KRYLOV METHOD

Leuven, Belgium

Jul. 2016