

Maria van der Walt | Curriculum Vitae

Westmont College, 955 La Paz Road – Santa Barbara, CA 93108

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Education

University of Missouri-St. Louis

St. Louis, MO

Doctor of Philosophy (Applied Mathematics)

May 2015

Title of thesis: "Wavelet analysis of non-stationary signals with applications"

Thesis advisor: C.K. Chui

Stellenbosch University

Stellenbosch, South Africa

Master of Science (Mathematics), Cum Laude

December 2012

Title of thesis: "Ternary interpolatory subdivision"

Supervisor: J.M. de Villiers

Stellenbosch University

Stellenbosch, South Africa

Bachelor of Science (Honors) (Mathematics), Cum Laude

December 2010

Stellenbosch University

Stellenbosch, South Africa

Bachelor of Science (Mathematical Sciences), Cum Laude

December 2009

Majors: Mathematics, Applied Mathematics

Employment history

Westmont College

Santa Barbara, CA

Assistant professor

August 2017 – present

Courses taught:

- Linear Algebra
- Calculus I
- Introduction to Statistics
- Introduction to Subdivision Methods
- Calculus II

Spring 2019

Fall 2017, Spring 2018, Spring 2019

Summer 2018, Spring 2019

Spring 2018

Spring 2018

Vanderbilt University

Nashville, TN

Assistant professor

August 2015 – July 2017

Courses taught:

- Linear Algebra
- Introduction to Numerical Mathematics
- Methods of Linear Algebra
- Accelerated Single-Variable Calculus II
- Differential Equations and Linear Algebra

Summer 2017

Spring 2017

Fall 2016, Spring 2017

Summer 2016

Spring 2016

University of Missouri-St. Louis

St. Louis, MO

Graduate teaching assistant / Instructor

January 2013 – May 2015

Courses taught as instructor of record:

- Trigonometry
- Basic Probability and Statistics
- Intermediate Algebra
- Beginning Algebra

Spring 2014, Fall 2014, Spring 2015

Spring 2014

Fall 2013

Fall 2013

Stellenbosch University

Temporary lecturer

Courses taught:

- Calculus I

Stellenbosch, South Africa

July 2012 – December 2012

Stellenbosch University

Tutorial coordinator

Tutorial programs managed:

- Mathematics for the Biological Sciences

Stellenbosch, South Africa

January 2012 – July 2012

Stellenbosch University

Teaching assistant

Courses tutored:

- Calculus I
- Mathematics for the Biological Sciences
- Introductory Mathematics
- Introductory Differential and Integral Calculus
- Further Differential and Integral Calculus
- Differential Equations and Linear Algebra
- Series, Partial Differential Equations and Fourier Transform
- Linear Programming
- Nonlinear Optimization

2009, 2011, 2012

2009, 2010, 2011, 2012

2010

2010, 2011

2010, 2011

2011, 2012

2010, 2011

2009

2009

Research papers and publications

- H.N. Mhaskar and M.D. van der Walt, "A deep learning approach to diabetic blood glucose prediction" (follow-up paper), in preparation.
- H.N. Mhaskar, S.V. Pereverzyev and M.D. van der Walt, "[A deep learning approach to diabetic blood glucose prediction](#)", *Front. Appl. Math. Stat.*, 2017
- M.D. van der Walt, "[Real-time, local spline interpolation schemes on bounded intervals](#)", *Applied Mathematical Sciences*, 10(5): 205–234, 2016.
- C.K. Chui, H.N. Mhaskar and M.D. van der Walt, "[Data-driven atomic decomposition of real-world signals](#)", *International Journal on Geomathematics*, 6(1):1–30, 2016.
- C.K. Chui and M.D. van der Walt, "[Signal analysis via instantaneous frequency estimation of signal components](#)", *International Journal on Geomathematics*, 6(1):1–42, 2015.

Conference, colloquium and seminar talks

Invited talks.....

Midwestern Workshop on Asymptotic Analysis

Indianapolis, IN

Title of talk: "Signal decomposition via SuperEMD"

October 6-8, 2017

1st International Conference on Mathematics of Data Science

Hong Kong

Title of talk: "Atomic signal decomposition via SuperEMD"	March 20-24, 2017
Colloquium: Department of Mathematics, Westmont College	Santa Barbara, CA
Title of talk: "Two of my favorite recent research projects"	November 14, 2016

Mecklenburg Workshop on Approximation Methods and Data Analysis	Hasenwinkel, Germany
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Title of talk: "Data-driven atomic decomposition via frequency extraction of intrinsic mode functions"	September 5-9, 2016
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Colloquium: Department of Mathematical and Statistical Sciences, University of Alberta	Edmonton, Canada
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Title of talk: "Signal analysis via instantaneous frequency estimation of signal components"	February 3, 2015
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Computational Analysis Seminar: Vanderbilt University	Nashville, TN
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Title of talk: "Signal analysis via instantaneous frequency estimation of signal components"	November 12, 2014
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Contributed talks.....

Southern California Applied Mathematical Sciences Symposium	Santa Barbara, CA
Title of talk: "A deep learning approach to diabetic blood glucose prediction"	April 28, 2018

Women in Math in Southern California Seminar	Malibu, CA
Title of talk: "A deep learning approach to diabetic blood glucose prediction"	March 24, 2018

15th International Conference on Approximation Theory	San Antonio, TX
Title of talk: "Data-driven atomic decomposition via frequency extraction of intrinsic mode functions"	May 22-25, 2016

Analysis Seminar: Saint Louis University	St. Louis, MO
Title of talk: "Signal analysis via instantaneous frequency estimation of signal components"	November 7, 2014

55th Annual SAMS Congress	Stellenbosch, South Africa
Title of talk: "Ternary interpolatory subdivision"	October 31 - November 2, 2012

Postgraduate Seminar: Department of Mathematical Sciences, Stellenbosch University	Stellenbosch, South Africa
Title of talk: "Ternary interpolatory subdivision"	May 11, 2012

Awards

University of Missouri-St. Louis	St. Louis, MO
Edward Z. Andalafte Memorial Scholarship	2015
Graduate School Doctoral Recruitment Fellowship	2013,2014

Stellenbosch University	Stellenbosch, South Africa
Stellenbosch University medal for the best master's student in the Faculty of Science	2012
Dean's medal for the best achieving honors student in the Faculty of Science	2010
Rector's award for excellent achievement (academic) for the best achieving	

honors student in the Faculty of Science	2010
G.B.B. Rubbi book prize for best marks obtained in Mathematics	2007,2008,2009,2010
Merit bursary	2007,2008,2009,2010

Other

South Africa

6 th highest final grade in the Western Cape province in the Senior Certificate Examinations	2006
Highest marks in the Western Cape province in Mathematics and Music in the Senior Certificate Examinations	2006

Service

○ Review Editor for <i>Mathematics of Computation and Data Science</i> , Frontiers in Applied Mathematics and Statistics	2016 – present
○ Referee for <i>Applied and Computational Harmonic Analysis</i>	2015 – present
○ Referee for <i>IEEE Journal of Biomedical and Health Informatics</i>	2019
○ Referee for <i>Proceedings of the 21st ACMS Conference</i>	2017
○ Referee for <i>Signal Processing</i>	2016
○ Referee for <i>Journal of Approximation Theory</i>	2015