Maria van der Walt | Curriculum Vitae

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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

Vanderbilt University	**Nashville, TN**
Assistant professor	*August 2015 – present*

Courses taught:
- Methods of Linear Algebra — *Fall 2016*
- Accelerated Single-Variable Calculus II — *Summer 2016*
- Differential Equations and Linear Algebra — *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 — *Spring 2014, Fall 2014, Spring 2015*
- Basic Probability and Statistics — *Spring 2014*
- Intermediate Algebra — *Fall 2013*
- Beginning Algebra — *Fall 2013*

Stellenbosch University	**Stellenbosch, South Africa**
Temporary lecturer	*July 2012 – December 2012*

Courses taught:
- Calculus I

Stellenbosch University	**Stellenbosch, South Africa**
Tutorial coordinator	*January 2012 – July 2012*

Tutorial programs managed:
- Mathemathics for the Biological Sciences

Stellenbosch University	**Stellenbosch, South Africa**
Teaching assistant	*January 2009 – July 2012*

Courses tutored:

○ Calculus I	*2009,2011,2012*
○ Mathematics for the Biological Sciences	*2009,2010,2011,2012*
○ Introductory Mathematics	*2010*
○ Introductory Differential and Integral Calculus	*2010,2011*
○ Further Differential and Integral Calculus	*2010,2011*
○ Differential Equations and Linear Algebra	*2011,2012*
○ Series, Partial Differential Equations and Fourier Transform	*2010,2011*
○ Linear Programming	*2009*
○ Nonlinear Optimization	*2009*

Research papers and publications

○ C.V. Beccari, M. Neamtu and M.D. van der Walt, "On the approximation order of rational geometric splines", in preparation.

○ 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

Mecklenburg Workshop on	
Approximation Methods and Data Analysis	**Hasenwinkel, Germany**
Title of talk: "Data-driven atomic decomposition via frequency extraction of intrinsic mode functions"	*September 5-9, 2016*
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*
Colloquium: Department of Mathematical and Statistical Sciences, University of Alberta	**Edmonton, Canada**
Title of talk: "Signal analysis via instantaneous frequency estimation of signal components"	*February 3, 2015*
Computational Analysis Seminar: Vanderbilt University	**Nashville, TN**
Title of talk: "Signal analysis via instantaneous frequency estimation of signal components"	*November 12, 2014*
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*
Harry Crossley bursary	*2011,2012*
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*
Bursary from Elaine Forsyth Memorial Trust	*2008,2009,2010*
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**
6th 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 *Mathematics of Computation and Data Science*, Frontiers in Applied Mathematics and Statistics — *September 2016 – present*
- Referee for *Signal Processing* — *2016*
- Referee for *Journal of Approximation Theory* — *2015*
- Referee for *Applied and Computational Harmonic Analysis* — *2015*

References

Prof. Mike Neamtu	Dept. of Math. Chair, Vanderbilt University
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Prof. Haiyan Cai	Dept. of Math. Chair, UMSL
✉ haiyan_cai@umsl.edu 📞 (314) 516-6719	
Prof. Charles K. Chui	PhD thesis advisor
✉ ckchui@stanford.edu 📞 (650) 853-3034	
Prof. H.N. Mhaskar	Collaborator
✉ hmhaska@caltech.edu 📞 (323) 343-2150	