

# Maria van der Walt | Curriculum Vitae

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## Education

<b>University of Missouri-St. Louis</b> <i>Doctor of Philosophy (Applied Mathematics)</i> Title of thesis: "Wavelet analysis of non-stationary signals with applications" Thesis advisor: C.K. Chui	<b>St. Louis, MO</b> May 2015
<b>Stellenbosch University</b> <i>Master of Science (Mathematics), Cum Laude</i> Title of thesis: "Ternary interpolatory subdivision" Supervisor: J.M. de Villiers	<b>Stellenbosch, South Africa</b> December 2012
<b>Stellenbosch University</b> <i>Bachelor of Science (Honors) (Mathematics), Cum Laude</i>	<b>Stellenbosch, South Africa</b> December 2010
<b>Stellenbosch University</b> <i>Bachelor of Science (Mathematical Sciences), Cum Laude</i> Majors: Mathematics, Applied Mathematics	<b>Stellenbosch, South Africa</b> December 2009

## Employment history

<b>Vanderbilt University</b> <i>Assistant professor</i> <ul style="list-style-type: none"><li>○ Accelerated Single-Variable Calculus II</li><li>○ Differential Equations and Linear Algebra</li><li>○ Methods of Linear Algebra</li></ul>	<b>Nashville, TN</b> August 2015 – present
<b>University of Missouri-St. Louis</b> <i>Graduate teaching assistant / Instructor</i> Instructor of record: <ul style="list-style-type: none"><li>○ Trigonometry</li><li>○ Basic Probability and Statistics</li><li>○ Intermediate Algebra</li><li>○ Beginning Algebra</li></ul>	<b>St. Louis, MO</b> January 2013 – May 2015 Spring 2014, Fall 2014, Spring 2015 Spring 2014 Fall 2013 Fall 2013
<b>Stellenbosch University</b> <i>Temporary lecturer</i> <ul style="list-style-type: none"><li>○ Calculus I</li></ul>	<b>Stellenbosch, South Africa</b> July 2012 – December 2012
<b>Stellenbosch University</b> <i>Tutorial coordinator</i> <ul style="list-style-type: none"><li>○ Mathematics for the Biological Sciences</li></ul>	<b>Stellenbosch, South Africa</b> January 2012 – July 2012

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

○ 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

**Awards****University of Missouri-St. Louis****St. Louis, MO**

Edward Z. Andalaft 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

Elise Visser bursary 2007,2008

**Other****South Africa**6<sup>th</sup> 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

**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

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- Mecklenburg Workshop on Approximation Methods and Data Analysis *September 5-9, 2016*  
"Data-driven atomic decomposition via frequency extraction of intrinsic mode functions"
- 15<sup>th</sup> International Conference on Approximation Theory, San Antonio *May 22-25, 2016*  
"Data-driven atomic decomposition via frequency extraction of intrinsic mode functions"
- University of Alberta, Canada, Colloquium *Feb. 3, 2015*  
"Signal analysis via instantaneous frequency estimation of signal components"
- Vanderbilt University, Computational Analysis Seminar *Nov. 12, 2014*  
"Signal analysis via instantaneous frequency estimation of signal components"
- Saint Louis University, Analysis Seminar *Nov. 7, 2014*  
"Signal analysis via instantaneous frequency estimation of signal components"
- 55<sup>th</sup> Annual SAMS Congress, Stellenbosch University, South Africa *Oct. 31 - Nov. 2, 2012*  
"Ternary interpolatory subdivision"
- Stellenbosch University, South Africa, Postgraduate Seminar *May 11, 2012*  
"Interpolatory ternary subdivision"

## References

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**Prof. Mike Neamtu**

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**Prof. Haiyan Cai**

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**Prof. Charles K. Chui**

PhD thesis advisor

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**Prof. H.N. Mhaskar**

Collaborator

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