
CURRICULUM VITAE

ALEXANDRE HARDY

Personal Details

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Spoken Languages: English
Afrikaans

Academic Qualifications

Date	Qualification	Institution
September 2005	PhD. (Applied Mathematics) Thesis title: <i>Harmonic Interpolation for Smooth Curves and Surfaces</i>	University of Johannesburg
March 2000	M.Sc. (Computer Science) Cum Laude Dissertation title: <i>An Implementation and Analysis of the Configurable Security Architecture</i>	R.A.U.
March 1999	B.Sc Hons. (Computer Science) Cum Laude	R.A.U.
July 1998	Fuzzy Logic Certificate Course	R.A.U. (ISSC)
March 1998	B.Sc (Computer Science and Informatics) Cum Laude	R.A.U.
December 1994	Matric Exemption	Krugersdorp High

Work Experience – Positions

Date	Institution	Position
2009–	Benguela Software Development	Developer
2008–2009	University of Johannesburg	Associate Professor
2005–2007	University of Johannesburg	Senior Lecturer
2003–2006	UNISA	Remarker (Operating Systems)
2004	University of Pretoria	External Examiner (COS324/COS226)
2003	University of Pretoria	External Examiner (COS324, RNW780)
2001–2004	R.A.U.	Lecturer
2000	R.A.U.	Junior Lecturer
1997–1999	R.A.U.	Assistant (Computer Science)
1996	R.A.U.	Assistant (Mathematics)

Work Experience – Subjects Presented

Date	Subject	Level
2002–2008	Computer Graphics	Postgraduate
2004–2006,2008–2009	Compiler Construction	Postgraduate
2001, 2003–2005	Systems Programming (Linux Driver Development)	Postgraduate
2000	Concurrency	Postgraduate
2000–2003	Introduction to Functional Programming	Postgraduate
2002–2009	Introduction to Algorithm Development(C++)	Undergraduate
2002–2006	Introduction to Data Structures(C++)	Undergraduate

Work Experience – Extracurricular

Date	Subject	Level
2002–2006	Module 1 - Introduction to programming	ITDiploma
2002–2006	Module 2 - Datastructures	ITDiploma
2002–2005	Module 7 - Data communications and networks	ITDiploma
2002–2008	Module 10 - Operating systems	ITDiploma

Academic Awards

Date	Award	Institution
1998	Student Council Academic Colours	R.A.U.
	ABSA Scientia Award	R.A.U.
1997	Liberty Life Award: Computer Science 3	R.A.U.
	Liberty Life Award: Informatics 3	R.A.U.
	Top Achiever: Faculty of Science	R.A.U.
1996	Liberty Life Award: Informatics 2	R.A.U.
1994	Academic Colours	Krugersdorp High School

International Collaboration

Fraunhofer Institute, Berlin, 2003. Collaboration on timetabling systems and e-Learning environments.

Fraunhofer Institute, Berlin, 2005. Development of a web based time tabling system based on CONBATT.

Conference Committees

AFRIGRAPH 2009 Conference chair
6th International Conference on Virtual Reality, Computer Graphics,
Visualisation and Interaction in Africa 4–6 February 2009, Pretoria, South Africa

AFRIGRAPH 2009 Programme committee
6th International Conference on Virtual Reality, Computer Graphics,
Visualisation and Interaction in Africa 4–6 February 2009, Pretoria, South Africa

AFRIGRAPH 2007 Programme committee
5th International Conference on Virtual Reality, Computer Graphics,
Visualisation and Interaction in Africa 29–31 October 2007, Grahamstown, South Africa

Skills

Operating systems:

- Microsoft Windows
- Linux
- MacOSX

Programming Languages:

- Microsoft Visual Basic
- Java and MIDP
- C++
- PHP, Perl
- Standard ML
- Scheme

Programming Paradigms:

- GPU Programming
- Parallel programming (MPI)
- Functional programming

Publications

A. Hardy. Programmable Transitions for Video Stream Editing. Proceedings of Afrigraph 2009, 101–107, 2009.

A. Hardy, W.-H. Steeb. *Mathematical Tools in Computer Graphics with C# Implementations*. World Scientific, 2008.

A. Hardy. Interpolatory $\sqrt{3}$ Subdivision with Harmonic Interpolation. Proceedings of Afrigraph 2007, 95–100, 2007.

H. Venter, A. Hardy. Generating Plants with Gene Expression Programming. Proceedings of Afrigraph 2007, 159–167, 2007.

N. Zink, A. Hardy. Cloth Simulation and Collision Detection Using Geometry Images. Proceedings of Afrigraph 2007, 187–195, 2007.

Publications (*continued*)

D.A.K. Mc Roberts, A. Hardy. Level of Detail for Terrain Geometry Images. Proceedings of Afrigraph 2007, 25–30, 2007.

J. K. Loots, A. Hardy. Parallel Communication for Animating Fluids. Poster. Afrigraph 2007.

A. Hardy, D.A.K. Mc Roberts. Blend Maps: Enhanced Terrain Texturing. Proceedings of SAICSIT 2006, 61–70, 2006.

A. Hardy, W.-H. Steeb. Harmonic Interpolation for Image Compression. International Journal of Image and Graphics **6** (4): 657–676, World Scientific, 2006.

A. Hardy, W.-H. Steeb. A Note on Schuster’s Lagrange Interpolation Method. International Journal of Shape Modeling **12** (1): 75–86, World Scientific, 2006

W.-H. Steeb, Y. Hardy, A. Hardy, R. Stoop. *Problems & Solutions in Scientific Computing, with C++ and Java Simulations*, World Scientific, 2004

A. Hardy, W.-H. Steeb. Harmonic Interpolation and Lie Groups. International Journal of Theoretical Physics. **43** (5):1261–1266, 2004

A. Hardy, W.-H. Steeb. Harmonic Interpolation, Bézier Curves and Trigonometric Interpolation. Z. Naturforsch **59a**, pg. 591–596. 2004

A. Hardy, M.S. Olivier. A Comparison Between ConSA and Current Linux Security Implementations. In *Data and Applications Security XV*, pages 211–224. Kluwer Academic Publishers, 2002

A. Hardy, M.S. Olivier. A Configurable Security Architecture Prototype. In *Data and Applications Security, Developments and Directions*, pages 51–62. Kluwer Academic Publishers, 2001

Supervision – Completed

Tristan Didier Alexandre Dopler, (co-supervisor) Code Optimisation Using Discrete Optimisation Techniques, M.Sc, University of Johannesburg, 2006.

Ralf Globisch, Automated Grasping for Articulated Structures Using Evolutionary Learning Algorithms, M.Sc, University of Johannesburg, 2005.

Warren Hodgkinson, Interactive Speech-Driven Facial Animation, M.Sc, University of Johannesburg, 2005

Hannes Venter, Evolutionary Generation of Plant Models, M.Sc, University of Johannesburg, 2009

Supervision – Current

Duncan Andrew Keith Mc Roberts, Real-time Rendering of Synthetic Terrain, M.Sc.

Daniel Walker, Level of Detail for Real-time Rendering of Geometric Objects, M.Sc.

Nico Zink, Geometry Images for Cloth Simulation, M.Sc.

Research Interests

Curves and surfaces, geometry, terrain rendering, simulation, visualisation.

References

Prof. W.-H. Steeb
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