Andrew Woods

Curriculum Vitae

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Personal Details

name	Andrew Mark Woods
age	25
gender	Male
marital status	single
id number	8409185263089
first language	English

Education

2003–2006	**BSc(Eng)**, *Electrical and Computer Engineering*, University of Cape Town. *First Class Honours*
2007–2009	**MSc(Eng)**, *Electrical Engineering*, University of Cape Town. *Expected to graduate first half of 2010*

Undergraduate Dissertation

title	*An FX Software Correlator for the Karoo Array Telescope Project*
supervisors	Prof. Michael Inggs, Dr Alan Langman and Dr Marc Welz

Postgraduate Dissertation

title	*Accelerating Radio Astronomy Correlation with FPGA and GPU Hardware*
supervisors	Prof. Michael Inggs and Dr Alan Langman

Experience

Vocational

2009 – present	**Research Scientist**. Centre for High Performance Computing, CSIR Responsibilities include: investigation and application development using reconfigurable computing and GPU hardware; undergraduate student supervision and laboratory administration.

Research Experience

2007 – 2008 **Graduate Student**, *Prof. Michael Inggs and Dr Alan Langman*.
Karoo Array Telescope and Department of Electrical Engineering, UCT
Investigations into the use of high performance reconfigurable computing, GPUs and high performance computing for signal processing applications for the Karoo Array Telescope.

March – May 2007 **Visiting Student Researcher**, *Dr Mark Parsons and Dr Rob Baxter*.
Edinburgh Parallel Computing Centre, University of Edinburgh
Implementation and analysis of radio astronomy signal processing algorithms on a cluster reconfigurable computer.

2008 – 2009 **Student Researcher**, *Prof. Michael Inggs and Dr Jeff Chen*.
Centre for High Performance Computing, CSIR and Department of Electrical Engineering, UCT
Developing signal processing applications for the Karoo Array Telescope using FPGA, GPU and computing clusters.

Teaching Experience

2008 **Teaching Assistant**, for Dr Craig Steffen (NCSA, University of Illinois).
NCSA Reconfigurable Computing Course, hosted at CHPC, Cape Town

2009 **Teaching Assistant**, for Prof. Kunle Olukotun (Departments of Electrical Engineering and Computer Science Stanford University).
Stanford Parallel Computing Architecture and Programming Course, hosted at CHPC, Cape Town

Technical Competencies

Software Technical Experience

programming languages	C/C++, Python, Java (J2SE, J2ME)
engineering	CUDA, VHDL, Verilog, MATLAB, Simulink, Altera Quartus, Xilinx ISE
open source	Linux, POSIX API, mySQL, PHP
standards	OpenMP, MPI, XHTML, XML, XSL
software engineering	UML
microsoft	.NET Framework
preferred development environment	Unix-like systems

Hardware Technical Experience

microprocessors	ARM9, Motorola 68HC05, MIPS32, x86, POWER
fpga	Altera Cyclone II, Xilinx Virtex 4
other architectures	Nvidia GPUs (CUDA), IBM Cell BE

Workshops and Conferences Attended

Poster Presentations

2008 "Reconfigurable Computing Implementation of a Astronomy Accelerator"
International Supercomputer Conference
Dresden, Germany, 17-20 June

2009 "Accelerating a Software Radio Astronomy Correlator using FPGA co-processors"
Symposium on Application Accelerators in High-Performance Computing
NCSA, University of Illinois, Urbana-Champaign, USA, 28-30 July

Attended

2007 Manchester Reconfigurable Supercomputing Conference
The University of Manchester, Manchester, UK

EPCC Parallel Programming Workshop
University of Edinburgh, Edinburgh, UK

Centre for High Performance Computing (CHPC) National Meeting
Cape Town

SA SKA Postgraduate Bursary Conference
Cape Town 26-30 November

IBM Cell Broadband Engine Architecture Workshop
Cape Town

2008 International Supercomputer Conference
Dresden, Germany, 17-20 June

SA SKA Postgraduate Bursary Conference
Stellenbosch 1-5 December

2009 Symposium on Application Accelerators in High-Performance Computing
NCSA, University of Illinois, Urbana-Champaign, USA, 28-30 July

Many-Core Programing Summer School
NCSA, University of Illinois, Urbana-Champaign, USA, 10-14 August, presented by Dr David Kirk and Prof. Wen-Mei Hwu

CHPC Parallel Programming Workshop
CHPC, 5-7 October, presented by Prof. Dongarra, University of Tennessee

Centre for High Performance Computing (CHPC) National Meeting
Johannesburg, 7-9 December

Honours and Awards

2003–2005   **Dean's Merit List**
Award is eligible for students in the first 3 years of study when "academic performance over the year is meritorious".

2006   **Graduated with First Class Honours**
Averaging 75% or greater throughout undergraduate degree

2007–2008   **Karoo Array Telescope M.Sc. Bursary**

2008   **UCT Postgraduate Scholarship**

References

Prof. Michael Inngs (Michael.Inggs@uct.ac.za)
Dr Alan Langman (alan.langman@gmail.com)