

Gender: Male
 Date of Birth: 1976
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GOALS The research, development and creation of new and novel IT-based solutions. The design and architecting of solutions in response to business needs.

EDUCATION

- *Master of Science*, Software Engineering, University of Hertfordshire,
- *Bachelor of Science*, Software Engineering Stream, UNISA, dual majors in *Computer Science* and *Information Systems* (distinction in *Information Systems*).
- *RICS completion*, Research and Innovation Core Skills training, CSIR, completed in 2009

EXPERIENCE

Detnet SA Senior Developer within the *Embedded Software* business unit. Develop real-time software and device drivers. *Dec 2014 — Current*

MTN Senior Engineer, Researcher within the *Technology Innovation* unit. Employed a number of different methods in the implementation of directed research. Presented numerous technical workshops with the aim of knowledge dissemination within MTN. *Nov 2012 — Oct 2014*

CSIR, Meraka Institute Researcher, writer, developer, also served in an advisory capacity. *Jan 2007 — Oct 2012*

Altech Card Solutions Senior embedded developer, smartcard terminals. *Sep 2002 — Dec 2006*

Prism Payments Embedded developer, smartcard terminals. *Jul 2001 — Aug 2002*

Globepost Technologies Enterprise Solaris *C* developer. *Apr 2001 - Jun 2001*

LANmetrix Web and Systems Developer, network management software. *Jul 1998 — Mar 2001*

UNP Student laboratory consultant. *Jan 1998 — Jul 1998*

INDUSTRY

- Served for four years on the board of an *SABS* technical sub-committee (SC71L).
- Participated in a technical industry team (including Deloittes, Multichoice and various state departments) as part of the States *ICT Industry Initiative for Job Creation*.
- Participated in an independent policy research organisation (the *Free Market Foundation*).

LANGUAGES I'm competent in all of the following languages (listed in order of proficiency, highest to lowest): *C*, *Bash*, *LaTeX*, *SQL*, *C++*, *Java*, *PHP*, *Python*, *Lisp*, *x86 Assembler*. I've developed software professionally since 1998.

OTHER

ICT I'm familiar with most aspects of ICT, including server maintenance, encryption and security processes, software architecture and digital microcontroller application.

Achievements Directed and oversaw successful implementation of project *Vula* within Meraka; applied for and received R1.5m in funding during 2009 for project *Ubuntu.Sci*, ran the project successfully from that point.

Mentoring I've published (in printed publications at the CSIR) tutorials, introductory texts, etc. I regularly did presentations with a variety of technical and academic content.

REFERENCES

- Thomas Fogwill, Former Supervisor
- Mixo Shiburi, Former Colleague
- Steyn Maritz, Former Colleague

Meraka
Medikredit
Altech Card Solutions

DUTIES & RESPONSIBILITIES

Detnet SA My duties include writing device drivers, PC control programs, operating programs for embedded (non-OS) devices, operating programs for Real-time Linux and test-systems software. The products Detnet SA produces are used in a safety critical environment in the Blasting and Detonation fields around the world.
Dec 2014 — Current

MTN At MTN I was employed in the position of Senior Engineer attached to the Technology Innovation unit of Service Delivery. My tasks were varied and numerous and include:
Nov 2012 — Oct 2014

- Novel, new and patent-worthy inventions and discoveries.
- Research in various ICT disciplines and report writing.
- Software design and development, ranging from the requirements elicitation phase through the developmental and testing phases on to the deployment phase.
- The implementation and testing of protocols used in ICT (VoIP, XMPP, etc).
- Knowledge dissemination via presentations and workshops in many technology areas related to the SDLC.

In my short time at MTN, I've authored two papers (not yet published, patent pending) in the field of digital video signals and have developed video and sound streaming services. In addition, I was instrumental in designing the backend architecture for a large service system (deployed in 2014) as well as developing many of the core components of this system.

CSIR, Meraka Institute My duties as a Senior Researcher at the Meraka Institute included:
Jan 2007 — Oct 2012

- The authoring of conference and journal papers.
- Mentoring of Junior Researchers.
- Knowledge Dissemination.
- Industry Participation.
- Software Development

My interests at Meraka focused on those research activities which produced a direct positive impact on society. For example, I was part of the core team that undertook the development of a royalty-free Open Source scientific computing platform aimed at empowering scientists in developing countries. I've also contributed to the national grid computing project run from Meraka. Due to the experience gained on the grid computer I was able to experiment with large systems clustering and scaling.

As part of the drive towards improving the local ICT sector, I was also a participant of many industry initiatives. I was part of the SABS sub-committee tasked with standardising a national document and description language for computer documents (SC71L). I participated in a state-industry initiative to create digital content creation jobs (*The ICT Industry Initiative for Job Creation*) and contributed to discussions within the *Free Market Foundation* with regard to the development of the local ICT sector. My time at Meraka was enjoyable, moreso in light of the large number of varied knowledge dissemination sessions (workshops, tutorials and presentations) I held which were intended to pass valuable technology skills on to others.

Altech Card Solutions
Sep 2002 — Dec 2006

I was employed at Altech Card Solutions as a Senior Engineer, and I was the core developer entrusted with the company's largest client at the time. I designed and wrote embedded software for smartcard and magstripe credit and debit card terminals.

I developed software using C, C++ and assembly for 16-bit and 32-bit microcontrollers. I also wrote test harnesses for the software using a number of different scripting languages, some of which I designed and implemented myself.

At Altech Card Solutions I was instrumental in producing a full process for the SDLC incorporating software version control and an automated build and test cycle, the usage of which produced a gain in efficiency and robustness of the software.

**Prism Payments
Technologies**
Jul 2001 — Aug 2002

I was employed at Prism Payments Technologies as an Embedded Engineer and wrote code for 8-bit and 16-bit microcontrollers using the Cosmic C compiler and Motorola assembly language.

I was also tasked with some web-scripting in aid of managing the process around developing and testing the embedded software, and in one instance wrote a highly performant and efficient message-switching subsystem to execute on parallel Sun Microsystems Enterprise Servers.

Globepost Technologies
Apr 2001 — Jun 2001

I worked briefly at Globepost Technologies; the company retrenched me and subsequently closed down roughly two months after I joined. My duties during my short period with Globepost were simply to write web-based software that ran on Solaris Servers located in the UK.

LANmetrix
Jul 1998 — Mar 2001

I was employed at LANmetrix as a Unix/Linux Systems Programmer. I wrote a number of different Server Software Suites for Linux and Solaris Servers including Network Management Software (using SNMP), Data-Mining Software, Web-based Reporting tools and automated console tools.

I developed software using Perl, C, C++, SQL (Sybase and later MySQL), PHP, Javascript, shell scripting and all the usual Unix utilities (sed, bash, awk, etc). Much of the Unix and Linux experience I gained during these years I currently use, as I've been using Linux as my primary desktop since before starting at LANmetrix.

My time at LANmetrix was initially spent under the mentorship of a senior developer but towards the end of my time with LANmetrix I worked with very little supervision.

Miscellaneous

MSc Thesis My thesis project was to research the parallel and concurrent computation mechanisms currently available. A result of the investigation was an artefact that used a new and novel mechanism for distributing a problem across multiple computers. This effort (both code and thesis) is freely downloadable at the url below. Other artefacts as a result of this study include a simple Lisp interpreter, a mechanism to execute unmodified binary programs on a cluster and a comparative test with *MPI*.
<http://www.lelanthran.com/deranged/?p=211>

Software Development I enjoy writing software and thus write quite a lot as a hobby. Most of the software I develop on my own time is released under a Free Software license in order to promote further development by others. I've written and released (for free) software to perform accurate 3D-charting with math notation, various memory allocator algorithms to speed up memory accesses in programs, tiny scripting languages and more. My latest hobby-software is an extended C library to provide fast and efficient abstract data types for the C programming language. I've written extensive and detailed documentation (with examples) for this library. The documentation alone is over a hundred pages long. You can view and download this project from
<http://sourceforge.net/projects/libxc/>

Blog All the other software that I've developed can be found in my blog, along with articles and tiny pieces of research. My blog also contains code snippets and various tips and tricks of software development that I encountered in my career as a professional software developer, such as methods to mitigate the overrunning of buffers, enforce data encapsulation, etc. My blog is available at
<http://www.lelanthran.com>.

Education I'm in the process of developing a small web-based software program to teach the basics of programming to young children; specifically aiming at children who have not yet learned to read. The "programming environment" is similar to LOGO but entire programs can be written without the child needing to know how to read.

While this program still has to be polished, it can currently be tested at the url

<http://www.lelanthran.com/apps/turtle/turtle.html>

I've also developed a javascript library that helps maintain references and citations for academic writings that are published on web-pages. The entire library works within the browser and is provided with an example. The library intended to provide web-authors with reference and citation management functionality similar to that provided by the **Bibtex** and **Endnote** programs. The library is described fully in this paper:

<http://www.lelanthran.com/apps/jsnote/jsnote.pdf>