Curriculum Vitae

Sean Charleston

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Drivers Licence: New Zealand Full Licence

Technical Skills

- PLC programming (Ladder Logic, Structured Text, Sequential Function Chart)
- Computer programming (C, C++, C#, MATLAB, Simulink, LabVIEW)
- Time-of-Flight camera knowledge and experience
- Documentation and record keeping
- Advanced computer skills including the Microsoft Office Suite
- Soldering
- Circuit design
- Circuit simulation (SPICE)
- Electrical and Circuit diagrams
- PCB Design (Altium)
- Computer Aided Design (AutoCAD)
- PLC diagrams
- Report writing
- General workshop skills

Employment History

Date	Jan 2014 – Apr 2014
Company	Waikato University
L.O.B.	Time-of-Flight Camera Development

Position Held: Research Assistant

Summary

The Chronoptics team, based at the University of Waikato were approached by Plant & Food Research Ltd., who are exploring numerous 3D vision techniques for grading fruit. This project was focused around investigating and improving the issues surrounding motion in time-of-flight cameras, as well as an analysis on subsurface scattering within fruit, as a result of the infra-red light associated with the cameras.
I was responsible for running experiments and implementing various algorithms in the project. This included controlled simulation experiments on a moving translation stage, as well as implementing novel motion correction algorithms. The project was extremely challenging and rewarding, with all of the initial outcomes being met, concluding with a technical report.

Responsibilities

- Applying and modifying previous calibrations for motion
- Developing software to implement novel motion correction techniques
- Running controlled experiments with motion
- Producing fortnightly update reports to Plant & Food Research Ltd.

Date Oct 2013 – Jan 2014
Company WaikatoLink Limited
L.O.B. Agricultural Research and Development

Position Held: Research Assistant

Summary
Upon completion of my Engineering Degree, I undertook a contract as an extension to my honours research project. I was involved with the Chronoptics research group at the University of Waikato, as well as an external company, Farmshed Labs, who specialise in interfacing agriculture with technology.
This project investigated the use of time-of-flight cameras in the dairy environment. The Chronoptics group's state of the art algorithms were implemented, in an attempt to correct common drawbacks of time-of-flight technology including multipath interference.
Some of the key achievements of this contract included reverse engineering a commercial camera's calibration system, developing a Graphical User Interface (GUI) in MATLAB for external testing of software, and calibrating the existing algorithms for practical applications. The ultimate output goals of the project were to produce a management level presentation aimed at large dairy companies, and provide a technical report.

Responsibilities

- Reverse engineering a time-of-flight calibration system
- Working independently whilst providing regular contract updates
- Using MATLAB to develop interfaces and image processing programs
- Producing high-level outputs aimed at large corporations

Date Nov 2012 – Feb 2013
Company Plant & Food Research
L.O.B. Agricultural Research and Development

Position Held: Software and Prototype Developer

Summary
For my second Engineering Work Placement I worked on a project to grade various fruits and vegetables. My role was in the software development area of the project using LabVIEW to increase the usability and functionality of software for a LabJack (USB measurement and automation device). This also included integrating an easy way to export data, as well as interfacing new instruments (a flow meter and an injection valve).
Once this software was operational, I was producing prototypes of the sensing system using the LabVIEW software, as well as running all experiments and maintaining the hardware. I was required to discuss my findings and issues at weekly meetings with other Engineers, Scientists and Team Leaders.
Towards the end of the placement I gave a presentation to the company, outlining the project goals, achievements and the current limitations.

Responsibilities

- Using LabVIEW to develop software
- Producing prototypes
- Running accurate and repeatable experiments
- Brainstorming problems and ideas with supervisors, senior management, and engineers

- Preparing and presenting a technical presentation

Date Jun 2012 – Aug 2012
Company Corrective Building Surveyors
L.O.B. Building Inspection

Position Held: Development Engineer

Summary
I was employed part time during the University semester to begin the development of a project, focused around the detection of moisture in wood. Initially I performed a large amount of research and documentation. I was then involved in reverse engineering aspects of the solution which required troubleshooting and determination. Once the above was complete I was responsible for the initial circuit design and producing of a number concepts for testing.
I primarily worked autonomously and it was my responsibility to document my findings, complete work and communicate progress to my supervisor. This included weekly reports that outlined required resources for the following week as well as areas of concern to my supervisors.

Responsibilities

- Researching existing technologies
- Reverse Engineering
- Circuit design and simulation
- Keeping accurate documentation

Date Nov 2011 – Feb 2012
Company Ballance Agri-Nutrients, Taranaki
L.O.B. Crop Fertilisation

Position Held: I&E Engineering Assistant

Summary
As part of an engineering work placement, I spent the summer at Ballance Agri-Nutrients working as an Instrumentation and Electrical Engineering Assistant. I spent most of my time working on a PLC replacement project. I was working with ABB's AC800M PLC and was required to write multiple PLC programs in various languages, as well as produce a new HMI Panel for the operators to use.
The remainder of the time was spent working with Ballance's Distributed Control System, assisting with maintenance and upgrades. As my time at Ballance drew to a close, I was required to use and improve my time management skills in order for my work to be in a state ready for continuation.

Responsibilities

- Analysing existing Ladder Logic PLC code
- Reprogramming the Ladder Logic into the Structured Text and Sequential Function Chart languages
- Producing HMI panels
- Distributed Control System Maintenance

Date Jun 2011–Jul 2011
Nov 2010–Feb 2011
Company Stratex
L.O.B. Engineering Manufacturing

Position Held: Engineering Temp

Summary
Stratex is an engineering company which produces a range of products. During my time there I learnt a number of relevant skills, including PLC Programming, AutoCAD, basic Crystal Reports writing, Workmate.NET (asset management program) and general Electrical and Mechanical skills.
I also gained experience in learning to deal with particular individuals, which taught me patience, respect to others and how to work well with my co-workers. As I was in a factory environment, I also learnt how the workplace functions and operates. When I returned to Stratex during the semester break, I was performing Electrical Maintenance on the machines under the guidance of the Electrical Technicians. This included thermocouple calibrations and heater fan maintenance.

Responsibilities

- PLC programming
- AutoCAD work
- Mechanical maintenance
- Electrical Maintenance

Academic Summary

The University of Waikato:

Bachelor of Engineering

2013 Papers:	Engineering Work Placement 2	A+
	Honours Research and Management Project	A+
	Mechatronics	A+
	Engineering Statistics	A
	System Control Theory	A
2012 Papers:	Computational Mathematics	A+
	Electromagnetic Waves	A+
	Engineering Work Placement 1	A+
	Reflection on the Professional Workplace Experience	A+
	Science and Engineering Management A	A+
	Application Specific Integrated Circuits	A
	Microprocessor Applications and Control	A
	High Speed Communications	A-
	Optoelectronics	B+
2011 Papers:	Linear Algebra for Engineers	A+
	Preparation for the Professional Workplace	A+
	Digital Electronics	A
	Quantum and Solid State Physics	A
	Electricity and Magnetism	A
	Differential Equations for Engineers	A-

	Engineering Applications	B+
	Multivariable Calculus for Engineers	B+
	Analogue Electronics and Circuit Analysis	B
	Manufacturing Technology	B
	Engineering Design	B-
2010 Papers:	Introduction to Computer Science 1	A+
	Introduction to Computer Science 2	A-
	Introduction to Electronics	A-
	Introduction to Materials Science and Engineering	A-
	Introduction to Calculus	A-
	Introduction to Algebra	B+
	Physics for Scientists and Engineers 1	B+
	Foundations of Engineering	B-

Unitec:

Certificate of Applied Technology (Electronic Engineering)

2009 Papers:	CAD and PCB Design	A+
	Analog Electronics	A
	Computer Concepts	A
	Digital Logic	A-
	Signal Transmission Principals	A-
	Advanced Digital Electronics	B+
	Electrical Fundaments A	B

Secondary education

NCEA Level 2
NCEA Level 1

Other

2013 – Golden Key – Waikato Chapter
2012 – St John, First Aid Level 1

Interests

- Astronomy and Cosmology
- Cricket
- Social soccer
- Music

Referees

Supplied on request