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Online Portfolio <http://apudney.carbonmade.com>

Expertise

Industrial Design:

Innovative form studies visualised through sketching and three-dimensional modelling allow me to explore various aspects of any new product, in either entirely new styles or designing to fit into existing product ranges.

- **True Industrial Design should encompass more than the aesthetics of a product.** Every aspect of the product throughout its life cycle needs to be considered and included in the design, from raw material selection to end of life and recycling options.

Product Design and Engineering:

Creative and practical resolution of complex product design and engineering problems is one of my greatest strengths. **Fifteen years of experience** has taught me to design for manufacture with a wide range of materials and processes, from injection-moulded plastics to die-cast magnesium.

- As a **Certified Solidworks Professional**, my Solidworks skills are excellent, as is my ability to create functional and aesthetic prototypes. I love turning unique concepts into real products, and I **strongly believe in designing products to minimise cost, environmental impact, labour and waste.**

Effective Design Communication

The myriad projects I have completed throughout my career have polished and rounded my communication skills to a sophisticated level. Through writing, sketching, computer modelling and prototyping, I can effectively communicate design concepts and manufacturing requirements to a diverse audience, from toolmakers to customers.

- Brief writing, test reports and project proposals have all formed part of my professional experience, and I am a **confident and assured public speaker.**

Practical Design Experience:

My professional experience has given me a well-rounded understanding of the design process, having worked **hands-on** within all areas of a product's development cycle; from initial market requests through to assembly equipment design.

- Through commissioned work and personal projects, from product design to wood-carving, I can confidently translate design ideas into reality using any medium.

Experience and Responsibilities

Since leaving Quadrant HQ at the start of this year I have been focussed on finally finishing our house renovations before concentrating on further developing my design consultancy client base.

Quadrant HQ

Wellington

Jan 2013 – Jan 2016

Design Manager

I was asked to join the team at Quadrant HQ www.qhq.co.nz to both lead the graphic design team, and also provide industrial design expertise for the company. Quadrant HQ is a broad spectrum design consultancy, offering the unusual mix of graphic and product design, along with product sourcing and distribution. My responsibilities included management and distribution of workflow from all clients to the team, delivery of print and production ready files to local and Chinese suppliers, and development of new business. As the only industrial designer, all the product design and development was also my responsibility.

▪ Terracyclic

<http://www.terracyclic.com/>

New industrial design and engineering for a motion sensing automatic opener for sanitary bins. The unit was designed as a simple retrofit unit, and based around a rechargeable battery system. Currently tooling and in production through my Chinese suppliers.

▪ SnapIT

<http://blog.snapithd.com/>

New industrial design and engineered stainless housings for marine cameras. The compact, robust and stylish design won the Peoples Choice award at the 2014 Innovators awards.

▪ Dubai Audio

New concept and product development for power supply adaptor to match existing audio systems.

▪ Scratch foods

Full new corporate identity, translated across 4 different packaging concepts.

▪ Mitre 10

Application of new two new brands across multiple products for in-house branded tools.

Freelance Designer

Wellington

Oct2011 – Jan2013

After taking three months to travel Europe, my wife and I returned to Wellington, and I began contracting once more. My timing coincided with new projects from existing clients, and I have several projects in development currently.

Completed Projects:

▪ Industrial Designer - 'YouBike' rehabilitation cycle – Weltec Connect

<http://www.youbike.co.nz/>

I was approached by Weltec Connect to help develop a joint project with Venture Solutions. I was responsible for both the aesthetics and the manufacturing design of the entire product. By rationalizing the component count and utilising aluminium extrusions, I was able to reduce the weight by 40% while boosting strength and stiffness. Carbon fibre had been requested by the client for cosmetic purposes; however I advocated to use a vacuum formed carbon-look ABS, allowing the build cost to be kept under target. This project was a 2013 Innovators award finalist.

▪ Urgent Large Volume Prototyping – Cubic Defence NZ

Cubic Defence asked me to source and manage the urgent manufacture of a prototype product suite, consisting of over 125 full assemblies for full field testing. I was given 20 days to make any design modifications, and source the materials and components. This required a huge logistical effort, as I was based in Ireland, dealing with New Zealand, American, and Chinese suppliers. The components were complex, requiring multiple manufacturing processes. All parts were delivered on time and under-budget.

Redfox Auctions Ltd.

Ireland

Jul 2010 – Jan 2011

Owner/Director

Redfox Auctions was established to fill a gap in the online auction market in Ireland. I was responsible for the user interface design as well as the visual layout of the website. The functionality and usability of the site was well received, and favourably reviewed in local technical magazines. The existing classified based websites quickly updated their look and operation to closely mirror that of Redfox, and with their large pre-existing customer base, these changes unfortunately made redfox.ie an un-viable business. Trading ceased in January 2011.

Cubic Defence NZ

Auckland

Feb 2010 – Aug 2010

Senior Mechanical Design Engineer

I was asked by Cubic to undertake a six month contract to develop their first high volume plastic product, with projected quantities of approximately 30,000 units per year. Cubic had limited experience in designing products in plastic, and were eager to continue using machined metal components for the product housing. I convinced them to continue with plastics, and developed a family of three products which have all passed the stringent military testing on first attempt. I took responsibility for all the plastics design and specification decisions involved in the project, despite encountering significant resistance to the new use of plastics in the product range.

Freelance Designer

Auckland

Apr 2008 – Feb 2010

My second period as a freelance Industrial Designer was made much easier through the experience gained during my time running Objective Design. The lessons I learned about personal and business relationships enabled me to gain and develop a strong client base, and allowed me to

complete many projects during this time. The qualities of self-motivation and business vision are invaluable when working independently.

Completed Projects:

- frio™ coldshoe – Enlight Photo Ltd.
After the success of the Orbis ringflash product, I was contracted to undertake the design of a universal coldshoe for the photographic market. I designed and specified all aspects of the product, and the first parts out of the tool worked perfectly without modification.
<http://www.friocoldshoe.com/frio/>
- Telecom retail stands – Espies Ltd
I was employed by Espies as a Solidworks professional to help engineer a suite of furniture for Telecom NZ. This required me to rapidly gain an understanding of industrial cabinet-making processes, and to apply these to a complex design as supplied by the client. I worked with designers, installers, fabricators and suppliers to resolve the issues this project raised. These kiosks are now installed in many Westfield shopping malls around New Zealand. During the time I was employed I also streamlined a suite of hotel furniture manufactured by Espies to minimise the components required and simplify installation.
- GPRS data logging unit – Outpost Central Ltd
I was contracted to reverse engineer a competitor product, but successfully convinced the client to develop their own, with me providing the Industrial Design and plastics engineering for the project. Multiple revisions were made to the electronics during the design process, requiring a very flexible design and robust modelling.
- Custom Chandelier – Private commission
This commissioned piece was completed and installed in December 2009. Weighing over 25 kilograms and forming the centrepiece to a luxury home in the Marlborough Sounds, this was a very challenging project. Due to the difficulties in transporting the chandelier to the remote house, it had to be kept extremely modular. Also, I did not have exact measurements of the location it was to be installed so was unable to pre-assemble the chandelier. The design was able to accommodate multiple changes to the structure and size of the installation in order to fit it better to the room. Installation took 3 full days, and it now forms a striking feature to the house, with a distinctly New Zealand flavour. Pictures are available on my online portfolio, apudney.carbonmade.com
- Orbis™ ring-flash – Enlight Photo Ltd.
I was asked to offer tooling advice on this product at the end of 2007; however the design of the product was fundamentally flawed. The client enlisted me to redesign the product to ease manufacture and assembly, and also to research alternatives to the toxic chromed component in the existing design. The product is now in full production, and reviewed in the February 2009 issue of D-Photo. The Orbis is now on sale worldwide, and the project has spawned several smaller products and accessories.
<http://www.orbisflash.com>
- Retail Display Stands - Oggi
I was contacted to assist in a new project to design a LCD display unit for nationwide installation. Several high profile stores were fitted with trial installations, and the pilot featured in the May/June 2008 issue of Ideologue magazine.

- Heart Rate Monitor Design – Zephyr Technologies Ltd

I was tasked with providing a new aesthetic for the next generation of heart rate monitors. I worked closely with engineering and marketing to design and develop the product within 4 weeks for functional prototypes.

<http://www.zephyr-technology.com/consumer-hxm>

Objective Design Ltd

Auckland

Jan 2007 – Apr 2008

Director

Objective Design is a rapid prototyping company based around the Objet Polyjet 350V 3D printer. The primary focus was to provide truly rapid prototyping services to New Zealand industry, offering sub-24 hour turnaround as a standard, in addition to the highest quality service and prototypes possible.

I founded Objective Design with one other partner in August 2006, however trading did not commence until January 2007. Setting up the company was a huge learning experience, not to mention stressful, especially after selling my house in order to keep the business afloat for the first few months! There were two major challenges facing the company from the outset. The first was building a new client base from customers long entrenched with the existing suppliers. The second was shifting the industry expectations from slow, low resolution prototypes to paying a premium for high quality parts and service.

Objective Design was profitable after just 10 months, and I had one sales representative and one technician reporting to me after just 8 months in operation. In March 2008 Objective Design was sold as a going concern. At that time the client base included many of New Zealand's high profile manufacturing and design companies, and continues to be a premium supplier of rapid prototyping to the industry.

www.objectivedesign.co.nz

Phitek Systems Ltd

Auckland

Feb 2006 – Jan 2007

Senior Mechanical Design Engineer

Senior Mechanical Engineer and sole Industrial Designer responsible for component design and engineering, as well as product styling. Many projects involved the redesign of an existing product to fit within a customer's own product range.

<http://www.phitek.com/default,1204,storm.sm>

<http://www.phitek.com/default,1214,storm-pro.sm>

Highlights:

- Singapore Airlines Headset
Design headset to fit with Singapore Airlines new Business and First Class cabins. Responsible for the Industrial Design and mechanical engineering of the entire product, including a new system to allow the easy removal and cleaning of the ear cushions. Performed strength analysis on two existing components and made structural changes to solve a weakness in the plastic that had shown up in field testing.
- Swivel battery door patent
An existing headphone design was suspected to be in breach of a patent, so I was tasked with designing a new mechanism to allow access to the battery in the headphone ear-cup. At the same time I was paired with a new employee from a heavy engineering background in order to bring him up to speed in plastics and consumer product design. The new mechanism was subsequently patented, and the new employee I mentored became head of mechanical engineering after I left Phitek. Patent #US20080069391

Freelance Designer, Pudney Design

Singapore

Nov 2004 – Feb 2006

Working as a freelance Industrial Designer in Singapore gave me a broad range of experiences across many companies, as well as exposing me to some of the challenges of self-employment.

Strong self-motivation was critical, in addition to the ability to remain flexible when a rapid change in design direction requires a completely new approach to a project. I also relished the opportunity to work with several companies across cultures and time zones, crucial skills in today's global market. Clients and projects included:

Phitek Systems, New Zealand

- Industrial design concepts for personal noise cancellation headphones and earbuds.

Fusion Audio, New Zealand

- Concept design for a new range of waterproof stereo systems, including Ipod docking functionality.

Navman NZ, New Zealand

- Industrial design and assembly detail of VHF marine handset.
- Industrial design for handheld marine GPS navigation device.
- Plastics engineering and industrial design of GPS navigation unit for the American motor-home market. Developed new chassis-based snap together assembly system to speed production times and facilitate modularity.
- <http://www.northstarnav.com/en/Products/Communications/VHF-Marine-Radio-NS100ss/>

Brunswick New Technologies, USA

- Industrial design for a new range of high quality marine stereo systems.

NZ Kiosk, New Zealand

- Industrial design of stand-alone touch-screen information kiosks.
- Design of company logo, letterhead and business card.

US Analytics, USA

- Initial concept design for personal audio headsets.

Lucky Devil Designs, USA

- Initial design concepts for a range of marine speakers and audio equipment.

Pudney and Lee, New Zealand

- Detailed market analysis of retail technology sector in Singapore.

Mechanical Design Engineer

Industrial Designer and Mechanical Engineer, working across the company divisions, responsible for component design and engineering. Working primarily with injection-moulded plastics, many products also called for components designed using plastic and aluminium extrusions, blow moulding and magnesium die-casting.

Highlights:

- Sole designer and engineer for the Navman 5380 'Viking' project.

For this I championed the use of a GPS patch antenna, rather than the traditional quad-helix antenna. This lower cost option offered both manufacturing and performance benefits, and has since become the standard format across the company. The product was designed to minimize components and assembly time, whilst still providing a robust and attractive product capable of passing the stringent waterproof test criteria. I was also able to maintain the product line aesthetic, despite the 5380 being significantly smaller than the other products in the range.

<http://www.northstarnav.com/en/Products/Chartplotters/Explorer-538i/>

- Sole designer and engineer for the 'Halo 2' fleet tracking unit.

By utilizing the strength and economic benefits of extruded aluminium and plastic I was able to design a rugged and versatile unit with a unique clip mounting system that was easy to both assemble and install. The extruded design allows for easy dimensional modification to suit future products and applications.

<http://www.navmanwireless.co.nz/nz/fleet-tracking-products/gps-vehicle-tracking.html>

- Northstar 3100 re-engineering project.

This project involved the design of a new case to fit with an existing Northstar product range, but required the use of as many existing Navman parts as possible. I was able to achieve this with only two new components, resulting in a highly cost effective product. The project also required backlight optimization for the LCD screen. I was able to increase the light quality and regularity by approximately 15%, with modifications which are now standard features on both the Navman and Northstar products.

- Minor projects included:

Design and engineering of the Smartcraft Control Box, modifications to the magnesium housing of the ICN650 product, and the design of a cradle for the Personal Data Terminal. These were all engineering modifications to existing products, or the design of accessories to suit existing products.

<http://www.northstarnav.com/Products/Fuel-Management/SmartCraft/>

Assa Abloy New Zealand Ltd

Lockwood Arrow, Auckland
Interlock Group, Wellington

Mar 2003 – Nov 2003
Jan 2001 – Mar 2003

Design Engineer, Lockwood Arrow

New product developer, redesign of existing products, introduction of effective quality systems to meet ISO 9001 standards, streamlining of manufacturing processes.

Highlights:

- Design and development of a new, compact door-closer for European and Asian markets.
- Design and build product display units for sales and marketing purposes.

New Product Development Team, Interlock Group

Primary industrial designer, exploring new product opportunities in response to external market requests, and providing manufacturing input on new products during development.

Highlights:

- Lead designer for an 'Intelligent Window System' project ('smart-house' technology). Responsible for user interface development, including a touch screen and remote control.
- Developed ergonomic and functional modifications to field equipment for the United States Air-Force and the New Zealand Army.
- Initiated, developed and implemented a prototyping course for all 40 members of the Interlock Research and Development team. The major focus was soft tooling options for resins, as well as composite materials and rapid prototyping technologies.

Manufacturing Support Team, Interlock Group

Member of six-person team providing support and assistance to 180 process and assembly staff.

Highlights:

- Technical Liaison, representing manufacturing on all New Product Development projects, communicating production opportunities and limitations to a variety of people.
- Design and commission new assembly equipment, increasing productivity by up to 60%.

Education

Tertiary

2003 – 2004 Diploma of Plastics Specification and Design, Plastics New Zealand in association with the University of Auckland.

1997 – 2000 Bachelor of Design (Industrial), Massey University, School of Design (WLG). Specialising in Product Design, Computer Aided Design, and Ergonomics.

Secondary

1995 – 1996 Hutt Valley High School, Lower Hutt.
Bursary in seven subjects, Sixth Form Certificate in seven subjects.

1992 – 1994 Wellington College, Wellington.
Advanced learning stream.

Employment related training

- Solidworks Certified Professional and Associate (Solidworks Corp, 2009)
- Solidworks Certified Sheet Metal Specialist (Solidworks Corp, 2009)
- Solidworks Certified Mold Specialist (Solidworks Corp, 2009)
- Solidworks Certified Surfacing Specialist (Solidworks Corp, 2009)
- Pro-Engineer Wildfire Fundamentals (Matrix Computing, 2003)
- Building High Performance Teams (Blanchard, 2002)
- Situational Leadership Techniques (Blanchard, 2002)
- Forklift Certification (OSH, 2002)
- Die-casting Design Fundamentals (Interlock, 2001)
- Cross Functional Team Creation and Management (Interlock, 2001)

Hobbies and Interests

My interests include building one-off furniture and products, from intricately hinged boxes, to large carvings and sculptures. I have a passion for working with wood, and a stockpile of timber that often earns me a hard time from friends and family! I am an enthusiastic photographer, and had several of my photographs exhibited in a Singapore gallery. An avid reader of just about anything, I particularly enjoy non-fiction, popular science and history. As a non-smoker, I enjoy many outdoor activities including skiing, golf, hunting and fishing; and I will definitely get up in the middle of the night to watch the All Blacks! My wife and I renovated a small holiday house near Ohakune, and I love the opportunities this provides for the pursuit of some of these activities.