



# e-newsforindustry

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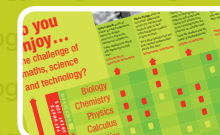
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## Visiting Industry Professionals announced

Futureintech is pleased to announce the recipients for the first round of the 2008 Visiting Industry Professionals scheme.



Futureintech VIP Paul Bosauder from Matrix Solutions gave a ten-week workshop on the practical aspects of engineering simulation at Waikato University last year.

**O**UR NEWEST VISITING INDUSTRY PROFESSIONALS represent fields from computer games to air navigation as they interact with tertiary institutions. Futureintech provides bi-annual funding at a total of \$35,000 a year for these senior professionals to spend up to three weeks working with students and staff. Their involvement may include teaching, giving lectures, and providing input on related curriculum and research.

**Paul Bosauder** (pictured), a Senior Analyst at **Matrix Solutions**, values his experience as a VIP at Waikato University last year. "Students really enjoyed seeing what the applications of the technology could be," he says. "It really provides them with exposure to industrial problems and a slightly more practical approach to what can be quite a theoretical field. They quite impressed me with how fast they picked up the ideas and were able to apply them."

Futureintech has reached its limit of applications for this round of funding, but further applications will be accepted in October. As always, the upcoming projects promise to be exciting and constructive. We look forward to hearing about their progress.

University of Otago  
Department of Computer Science

**Tyrone McAuley**, Technical Director and Co-founder of **Sidhe Interactive**, will be teaming up with colleagues from Sidhe's design, production, and art departments to talk about the computer game industry in a summer course on Computer Science.

University of Canterbury  
Department of Mechanical Engineering

**Dr Lawrence Ray**, Program Manager with **Carestream Health**, is a world expert in biomedical imaging. He will spend two weeks teaching a mini-course and interacting with students, staff and researchers.

University of Canterbury  
Chemical and Process Engineering

**Dr Robert Dempster**, Technical and R&D Manager with **Intervet Ltd**, will present two lectures to students of bioprocess engineering, and offer a seminar open to the wider department.

University of Waikato  
Department of Engineering

**J Godfrey Lucas**, air navigation expert, will give a series of lectures on antenna theory and measurement to third year physics undergraduates, fourth-year electronic engineering students, and local industrial researchers.

Massey University  
School of Engineering & Advanced Technology

**Dr Yong Yuan**, Research Scientist with **Industrial Research Ltd**, will give three lectures to senior mechatronics students, as well as tutoring their final projects and helping to revise the course contents. He will also give two research seminars to postgraduates in biosensors and bioelectronics and meet staff members for potential research collaboration.

## “Students are eager, curious and enthusiastic!”

Futureintech Ambassadors continue to spark student interest in technology, engineering, and science-related careers. They provide a valuable context for classes and assignments by providing personal examples of how their knowledge and skills are used in their working lives. And, they report, students are responding with eagerness, curiosity, enthusiasm, and creativity.



Trudy Geoghegan (second from left) and Isla Hepburn (far right) talk to a home-school group in Christchurch about their careers in the environmental industry,

**A**MBASSADORS TRUDY GEOGHEGAN AND ISLA HEPBURN from **Environment Canterbury** recently visited a home-school group of eight students in Christchurch. In their presentation, they talked about how they use science, maths, and communication to address environmental issues. The students took notes, wrote down web addresses, and asked so many questions that the session went forty minutes over time.

Trudy, Environment Quality Officer with Hazardous Substances and Waste Management, was particularly impressed with the students' curiosity. "They had some really great questions, intelligent and well thought out," she says. "It took us by surprise how insightful they were."

Contaminated Sites Officer Isla enjoyed the experience as well. "It was very positive, very interactive. I'd show them photographs of sites and ask questions, and they would respond with ideas. Several became quite passionate about it. It evolved into an hour-long Q&A session."

Teacher Annemieke de Jong was equally pleased with Trudy and Isla. "They were very informative, and eager to relate to the students," she says. "They were very clear in what direction of study they had chosen to undertake. It was obvious that they had studied quite a variety of subjects and were perhaps a little unsure at first as to what they wanted to do. Later all these studies came to good use. This is good for our young ones to hear."

Similar visits are taking place all over the country. At Napier Boys' High School, **Nick Wakefield** from **The Surveying Company** gave a demonstration on how trigonometry is used in land surveying. He showed students how to use a theodolite, and they went outside to measure distances on the rugby field.

And in Auckland, **Husain Al-Badry** from **Datacom** gave a talk to students at Avondale College about his role as Software Engineer, emphasising the importance of good communication skills as well as technical ability.

# 356 Futureintech Ambassadors do make a difference

IPENZ Scholarship Judge and Trustee of the IPENZ Foundation Warwick Bishop has some interesting things to say about the differences he sees that Futureintech Ambassadors are making to the school-leavers he deals with.

Futureintech Ambassador Spencer Travers gives students at Wakefield Girls High School a crash-course in robotics.

**M**ORE AND MORE SCHOOLS ARE RECOGNISING the potential of Ambassadors in the classroom. Currently there are 356 Ambassadors throughout New Zealand, and their activity is on the rise. In Term 1 this year, 75 schools engaged in Futureintech activity. From December to April, the number of students involved has increased 144% over the number for a similar period in 2007. Overall, the Ambassadors have logged an estimated 700 hours in the last six months.

It is difficult to pinpoint the effect of the Ambassador visits in terms of enrolment and employment figures. However, there are some encouraging trends emerging. Warwick Bishop, Scholarship Judge and Trustee of the IPENZ Foundation, has noticed a clear improvement in the applications he receives for engineering scholarships. “An interesting pattern is evolving,” he says. “In early years we had about a dozen applicants per year, mainly



Futureintech Ambassador Nick Wakefield demonstrates to students at Napier Boys High School how trigonometry is used in land surveying.

boys from the North Island. But for the last two years, the numbers applying have risen to nearly 100 per year and they now come from all over the country. About one third of them are girls. There is no doubt that many of New Zealand’s brightest young minds are now being attracted to professional engineering as a career.”

It is also evident that young role models are a major reason for this success. “A large number admitted to not knowing what they wanted to do with their lives until they met a ‘real engineer’. The largest impact came from meeting and hearing young professional engineers who had visited their colleges to talk about their working lives – the challenges and the rewards.”

Find out more...

To find out more about becoming an Ambassador, contact the Futureintech Facilitator in your area— see [page 8](#).

## Working together for a sustainable future

With all the recent headlines about climate change, rising fuel prices, and depleted natural resources, sustainability has become a central issue in our lives. And the question many are asking is: How can we maintain our quality of life in a way that preserves the environment and remains productive in the long run.

INDUSTRY LEADERS AND SCHOOLS ARE IN A CRUCIAL position to promote sustainable practices. More and more, students and professionals are working together to encourage environmental awareness in the choices we make.

### A sustainable workplace

For many industries, the first step to promoting sustainability is to re-examine their own daily operations and find ways to reduce consumption and waste. The solutions often involve details that many people take for granted, such as air conditioning and ventilation systems in offices.

Futureintech Ambassador **James Donald** is a Graduate Mechanical Engineer with **Connell Wagner**. Through new technologies and smart design, he aims to create systems that use as little energy as possible. Effective techniques include using natural ventilation, heating water with solar energy, and installing computer systems to monitor and adjust the climate.

The process can be tricky, particularly when dealing with an older building. “With sustainable design, each system is different,” he says. “It needs to be tailored to the building and its environment. It’s a move away from the old idea of ‘one system fits all’.”

For James, the implications are well worth the challenge. “It isn’t a gimmick. Buildings consume roughly 40% of the world’s energy. It’s pretty obvious that any changes we make will have a very real impact on our consumption.”



Futureintech Ambassador James Donald, who recently gave a talk on engineering practices with Ambassador Jarrod Darlington at Avondale College.

Engineering, sciences, and project delivery firm **Sinclair Knight Mertz** are dedicated to changing things for the better. They are a member of the international Corporate Leaders Group on Climate Change, and they recently committed themselves to a 30% reduction of carbon emissions over the next three years. Locally, they have started a number of initiatives to adopt environmentally-friendly practices in the workplace, such as switching their power suppliers to fully green energy, purchasing hybrid vehicles for company cars, and using recycled paper products.

*Continues on next page ...*

For company efforts to be effective, employees must be committed on a personal level as well. A good example is Futureintech Ambassador **Susannah Cullen**, a Graduate Civil Engineer at the Auckland branch of **SKM**. She spent her first two years doing environmental engineering in wastewater treatment plants. Her work is now focused on structural engineering, but she continues to take an active interest in environmental issues.

“I like the fact that sustainability is one of the core values of SKM,” she says. “It’s one of the reasons I chose to work here.”

Susannah is involved in the initiative to improve waste management. She has taken charge of the project in her office, and it is already making a difference.

“Up until recently, everyone in the office had their own small rubbish bin. We did have a recycling bin, but it was too easy for people to just throw things away. What we’ve done is remove those individual bins and give everyone a paper tray, which they can use for scrap paper or empty into the recycling bin. We’ve also put together a centralised waste station with three compartments: landfill, recycling, and organic.”

### Worms, waste and water

Organic waste is where Susannah’s role as Ambassador comes in. To deal with the waste of the office – including fruit peelings, tea bags, and certain paper products – she has enlisted the help of students and teachers at Point Chevalier Primary School.

The school has a history of environmental programmes, including recycling and tree planting. Recently they set up a worm farm, which was awarded to them by Auckland Zoo for their participation in Conservation Week. The colony of tiger worms consume the organic waste and produce a by-product that can be used as fertilizer.

“We were originally planning to take our office waste to their worm farm, but we ended up having far too much,” says Susannah. “So we’re going to set up our own farm, and the students are going to be involved. They’ll be helping us make posters to inform people about what we’re doing.”

Another supporter of the school’s efforts is **Nick Young** from **3M New Zealand Ltd**. Currently he is working with Point Chevalier students on a Transpower Neighbourhood Engineers Award project. They will be designing a system that collects rainwater from the school’s roof to irrigate a vegetable garden and orchard.

As part of his job to increase the efficiency of company operations, Nick has implemented sustainable practices in his own workplace, including a worm farm. Responding to the interest of parents and teachers, he recently teamed up with Susannah to give a presentation about the project. Together, they discussed the concept of worm farms and other waste minimisation techniques.

“The idea is for people to deal with their waste more consciously,” Susannah says. “We hope that parents and teachers will be interested, and maybe even set up worm farms at home.”

From an industry standpoint, Nick recognises the growing importance of sustainability in company policy. “Attitudes are changing. Environmental awareness is more prevalent, and it’s become a major selling point in terms of ethics and trust. Switching to sustainable practices is necessary to attract new customers and keep the ones we have.”

He has personal reasons for the effort as well. “It’s satisfying to know that you’re making a positive impact,” he says. “I have children now, so it’s definitely important to me. Any small thing I can do is going to benefit them in the end.”



### New careers poster

Students will be able to match their favourite subjects to career options with our latest poster, which will be available next month. The poster charts subjects such as biology, calculus, and technology with their relevance to the work of a variety of young professionals.

To find out more about this publication, contact our administrator at [enquiries@futureintech.org.nz](mailto:enquiries@futureintech.org.nz).

### Student Forum winners

Futureintech congratulates four **St Peter's College** students and their teacher, who have been selected for the International Hydrogen and Fuel Cells Student Forum in Brisbane, Australia.

The Forum, held on 17-18 June, offers students in Years 9-11 the chance to take part in discussion with contemporaries from around the world on sustainable fuel sources. The programme includes lectures and tutorials from world-renowned scientists working on relevant projects, and the chance students to share their thoughts and to collaborate on practical projects.

The **Ministry of Economic Development** has generously sponsored the five recipients to attend the forum by providing transport and accommodation costs.

The students and their teacher are worthy winners – they have shown genuine enthusiasm and insight into the subject, and plan to use the knowledge they gain at the Forum to further their goal of a clean environment.

**Do you enjoy... the challenge of maths, science and technology?**

**Then you're on the path to a great career in technology, engineering and science. Find out more at... [www.futureintech.org.nz](http://www.futureintech.org.nz)**

**futureintech** **harris stratex**

### New Futureintech Writer/Researcher

We welcome **Christine Linnell** as Futureintech's new Writer/Researcher. Christine recently emigrated from Nebraska, USA, and has been living in Wellington for the past year. She previously worked as a software engineer for ICT companies in America and England. She will now be using this insight to help to promote technology, engineering, and science careers in New Zealand.

You can contact Christine at [clinnell@futureintech.org.nz](mailto:clinnell@futureintech.org.nz).

### New Wellington Futureintech Facilitator

After six years working for IPENZ in a variety of roles, **Susan Weekes** has taken on the challenge of becoming Futureintech's Wellington-based Facilitator, stepping into the position recently vacated by Phil Sadgrove.

The Futureintech team are grateful to Phil for his contribution and hard work as Wellington Facilitator and wish him all the very best for the future.

Facilitators' contact details can be found on [page 8](#).

## About Futureintech

Funded by NZ Trade and Enterprise, Futureintech is an initiative of the Institution of Professional Engineers New Zealand (IPENZ). Established in 2003, Futureintech is a practical attempt to increase the number of young New Zealanders choosing careers in technology, engineering and science – crucial sectors for the infrastructure and social and economic growth of the country.

## Futureintech Ambassadors

Futureintech Facilitators around New Zealand work to develop links between schools and local industries. Central to this work is the recruitment of Ambassadors – young people working in technology, engineering and science who are trained by Facilitators to volunteer in schools. Their contribution includes giving presentations, explaining their work, supporting projects, providing a real-world perspective and demonstrating the practical applications of the curriculum. There are currently 350 trained Ambassadors working with Futureintech, representing a wide variety of industries. Their support and that of their employers is greatly appreciated.

## Futureintech partnerships

Futureintech maintains partnerships with over 200 companies, representing a diverse cross-section of New Zealand industry. Partners work with Futureintech in a variety of ways, from encouraging staff members to become Ambassadors to providing expert information for publications or promoting Futureintech to a wider audience. Futureintech's work would not be possible without their generosity and commitment.

## Futureintech publications

Futureintech produces an ever-increasing range of print resources for teachers, students, careers advisors, caregivers and industry, all of which are available free of charge by request from head office.

[www.futureintech.org.nz](http://www.futureintech.org.nz), a regularly updated website offering profiles of Ambassadors and their employers, a database of relevant tertiary courses and monthly regional news, is another key component of the initiative.

Futureintech's monthly newsletter **enews** is distributed in alternate months to schools and industries, and aims to ensure that all stakeholders are kept fully informed of Futureintech's activities and of the resources we provide.

## Futureintech Facilitators

Futureintech's regional Facilitators promote and maintain relationships with schools and industry employers. This involves recruiting and training Ambassadors, advising teachers on how Futureintech can best support their programmes, arranging, planning and supervising Ambassador visits and distributing resource materials.

Facilitators are supported by Host Partners, who provide the office space which enables them to work remotely from the Wellington head office. Host partnerships ensure that Facilitators not only benefit from a collegial atmosphere but also have daily exposure to an industry-related workplace.

If your staff might be interested in volunteering as Ambassadors, or your business benefit from being involved in any way with Futureintech, please contact your local Facilitator to discuss how we can work together.



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