

# NB

# News Bulletin

## Australian Branch



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Institution of  
**MECHANICAL  
ENGINEERS**

PRODUCED FOR INSTITUTION OF MECHANICAL ENGINEERS MEMBERS LOCATED IN AUSTRALIA

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## YOUR IMECHE - COMMITTED TO CHANGE.

**A new local structure has been proposed  
for the IMechE. Oceania Chair Ian Mash  
explains the background and explores the  
implications.**

Just prior to drafting this piece for the News Bulletin, I took a long weekend with the family in the Blue Mountains here in New South Wales. Now being somewhat interested in motorsport (though my wife would use alternative descriptions), we took a look at the Bathurst track (we were there a week before the big race, so no chance to drive up the mountain this time), and saw the old Catalina Race Circuit at Katoomba.

Comparison of old and the new presented some interesting reflections. Some things have changed a lot over time, but some things remain the same. Both circuits feature (or featured) some challenging corners: the kind that entice you in but bite the unwary. Both present flowing sections and challenges which as a racer, I'd certainly enjoy. Both offered more than a hint of the joyous feeling of hard racing. You could feel energy in both places.

But unlike Bathurst, which now features ample run off, Armco and more gravel traps that you can shake a V8 at, around Catalina you can still see the timber barriers on one side of the track (which would likely not stop a car anymore than the hay bales of yesteryear) and on outside of the track, a rock wall! No run offs, no margin of error, no factor of safety and nothing soft to hit if you arrive too hot into any corner. But that was appropriate and right for its day.

Things do change over time, and so they should. History, and a mindless adherence to believing it was better in the good old days, can be the enemy of progress, and might just (when one's romantic goggles are removed) be plain wrong.

These thoughts have parallels to our Institution locally. About a year ago, we started a process to see how we might find efficiencies (in time and money) about how the 'back of house' of our Institution's business here in Oceania operates.

The regional structure has now been in place for more than six years, and given the recent (last three years in particular) growth in activity of the Institution in New Zealand, there were obvious benefits to streamlining things. Reducing 'one layer of management' as a Yes Minister episode might have phrased it.

What we have been doing since then, is not holding Australian Branch meetings per se, but instead holding meetings where the representatives of all the states & territories in Australia, and their NZ counterparts all contribute equally and openly. Hopefully, from the individual member's perspective, it has been business as usual. Indeed, if we've done this well, it has been invisible to you – and so it should be.

By reorganising of the 'back office', we can do away with some of those old 'wooden barriers' that might otherwise frustrate progress, and free up time for our limited pool of volunteers who provide the majority of the member services locally anyway – be they Professional Interviews, learned society events, social events, mentoring or any of the plethora of other activities the volunteers put on. It is also a just a better way to use our (limited) funds – which after all, is entirely made up of the memberships you all pay.

That does not mean we have forgotten or denigrated the rich history of the Australian Branch – far from it. The Australian Branch remains in place, with officers etc. Indeed, this News Bulletin features forms to nominate for positions (and I encourage you to do so).

ON THE INSIDE



IMechE and E2E Join Forces  
Industry Liaison in NSW  
Apps for Engineers

Helmet Design Classes  
Assessing Our Heritage  
2018/2019 Office Bearers & AGM

Only, with progress, the way the Institution operates, and the context in which things are done, has progressed – and for the better. All meetings, and discussions now have a regional context. We're modernising, and trying to retain the best of the old, and the potential gains and improvements of the new.

Returning to my reflections and research into the old Katoomba Catalina Circuit for a moment, I did find a beautiful photograph of a young Bruce McLaren racing there. That got me thinking. Much like the Heritage Award for the Brabham BT19 awarded a few years ago, there must surely be some way of commemorating the life of one of the most talented race drivers NZ has ever produced, and a bloody good race car engineer to boot, with an IMechE Heritage award. The links to the UK are obvious – and a unique contribution in terms of race car design. Anyone any ideas to contribute as to which line we should take?

Off to Google more photos of old race tracks, and perhaps some new ones too. Stay safe.

Ian Mash - Oceania Chair

### Did you know?

*In preparation for our new institutional structure, around 250 members in New Zealand have been incorporated into the distribution of this News Bulletin. We now have a readership of over 1,100 professional engineers!*

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## MEET OUR NEW AUSTRALIAN CHAIR



My name is Andrew Lezala and I am the recently appointed Chair of the Australian Branch. I have succeeded Leslie Yeow who has served us very well throughout his tenure in the role. On behalf of us all in the Australian Membership, I would like to sincerely thank Leslie for his tireless work and dedication. Thank you Les!

My background is in Railway Engineering (including many years in the IMechE Railway Division) and company management. I am always looking for ways to make things more effective and to add more value to the front line delivery.

As our Oceania Regional Chair, Ian Mash has stated, we spotted an opportunity to streamline the Regional set-up by integrating the efforts of the Region and Branch, effectively taking out a layer and allowing for faster communications, decisions and better sharing of ideas and initiatives, whilst reducing administrative costs. This means that we can do more for the same funding in the areas of lectures, Speak Out for Engineering (SOFE) competitions, Young Members activities, awards, visits etc.

The local Panels are the main powerhouse of the IMechE here in Australia as this is where the programmes are put together, managed and delivered. However, without your participation, the things that we do count for little, so please ensure that you are actively involved with your local Panel (I also sit on the Victorian Panel) to ensure that we have a vibrant and sharing IMechE here in Australia.

Wishing you every success and happiness as we move towards the year end and holiday season.

Andrew Lezala – Australian Branch Chair

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# IMECHE & E2E JOIN FORCES

**New Zealand initiative aims  
to alleviate critical shortage  
of engineers**

Last month, Engineering Education-to-Employment (e2e) signed a Memorandum of Understanding (MOU) with the IMechE.

Engineering e2e and IMechE have agreed to collaborate on initiatives that contribute to increasing engineering graduates by over 500 per year. They will promote activities and share information about any initiatives relevant to achieving their mutual goals.

Engineering e2e is a government initiative set up in 2014 in response to a critical shortage of engineers in New Zealand.

There is a shortage of engineers at all levels in New Zealand. The Government has responded by allocating over \$60 million in the past four years to boost engineering education.

Engineering e2e runs multiple projects aimed at attracting more students into tertiary study in engineering, particularly in Diploma and Degree courses.

The Programme is guided by a Steering Group representing key stakeholder groups from the engineering sector. Members are a crucial link to the wider sector and play an important role in gathering and disseminating information.

The programme is managed by the Tertiary Education Commission. The partnership also includes the institutes of technology and polytechnics (ITPs), Business NZ, the Institution of Professional Engineers (IPENZ) and a number of organisations that employ engineers or benefit from their services.

The group aims to listen, link, leverage and lead, and more specifically to:



*Sir Neville Jordan (e2e chair) & Simon Fleisher (IMechE)*

- develop and implement a collaborative marketing campaign
- give effect to programme goals and work streams, particularly through engagement with their individual sectors
- form effective industry/education provider partnerships.

They are working to support the collaboration of all sectors – government, schools, tertiary education and industry – through:

- a range of research projects to establish needs and identify possible solutions
- an employer workshop and report
- the development of the engineeringe2e.org.nz website which includes a wide and growing range of case studies

on current best practice and relevant initiatives, plus a monthly newsletter.

Response from all sectors has been highly encouraging. There is a genuine recognition of, and concern over, the issues and a real willingness to seek solutions to the challenges ahead.

For more information, visit the e2e website: [engineeringe2e.org.nz](http://engineeringe2e.org.nz).

# PUT ON THINKING CAPS FOR HELMET DESIGN

**Just like making an omelette, you can't discover Engineering without breaking a few eggs.**



The Deakin Engagement and Access Program (DEAP) supports primary and secondary schools that are underrepresented in higher education. DEAP delivers a wide range of on-campus and in-school activities that support students' awareness of higher education as an accessible and exciting pathway. DEAP partnerships with primary schools were developed on the understanding that career and education aspirations are shaped during early formative years.

Santiago Corujeira Gallo from the Institute for Frontier Materials (IFM) at Deakin University, a CEEng member of the IMechE, delivered an engineering activity, "Crash Helmet for an Egg" with DEAP students. In this activity, students investigate the principles associated with the design and the selection of materials for a skating helmet.

Looking at a real helmet, the students identify a the need for a structure composed of three layers. A hard outermost layer spreads the loads into a larger area, an intermediate layer of



*IMechE member Santiago with students in the helmet design class*

polymeric foam absorbs most of the energy in a crash, and a soft innermost layer adapts the shape of the helmet to our heads for comfort. The activity emphasises the function of each layer and the different materials required in each case, as well as some basic design principles such as weight reduction and cost efficiency.

Students are then required to design and build a 'helmet' for an egg, using different types of wrapping material and aiming to keep the helmet as light as possible. Students test the effectiveness of their helmets by dropping the egg off a one-storey height. This activity has been successfully adapted to students from Grade 5 to Year 10.

Feedback from participants was very positive. Here are some of their comments:

"Coming into the learning space was very exciting for us. ...The students had a great time experimenting with different materials and designs." – Kate Jago, St Francis Xavier teacher.

"We had to make the egg a helmet and make it light so it didn't break. I liked that we could choose how we wanted to make it and it didn't have to be the same as others. I liked that it was a challenge!" – Lauren.

"It was fun because we got to work as a team and also because it was a challenge. When we dropped the egg I

tensed up because I didn't want the egg to break!" – Declyn.

I've delivered this activity several times. Most students have fun and learn something interesting, but there are always two or three students in each group who ask lots of questions and show the most interest. To me, it is very rewarding to see these emerging engineers in action.

**Santiago Corujeira Gallo -  
Deakin University**

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# BUILDING LINKS WITH INDUSTRY IN NSW

**Our New South Wales panel  
reports on a successful  
evening of networking with  
local businesses.**

IMechE NSW's Annual Industry Night occurred on Wednesday 30th August at the Advisian offices in North Sydney. The purpose of this evening was to provide an insight for students into the range of career paths that can be pursued in the world of mechanical engineering, after the completion of their undergraduate engineering degree.

The IMechE committee assembled a panel of engineering subject matter experts to provide their thoughts, observations and advice about what it means to become a successful professional engineer. The engineering experts represented Rail (Emma Doherty, SNC-Lavalin), Manufacturing

(Dianne Thomas, Sanitarium), Building Services (Robert Saidman, Arup), Oil and Gas (David Mair, Advisian), and Aerospace (Siam Syed, Airbus Group Australia Pacific).

The evening commenced with a networking session including complementary food and drinks. What better way to attract mechanical engineering students than with "free food and drinks"! The networking session proved to be a fantastic opportunity for engineering students to meet fellow like-minded students and engineering subject matter experts to discuss and share ideas on all things mechanical engineering.

The Industry Night aimed to shed light on the age old question which haunts every student on the cusp of graduation: What now? The market today is cut-throat so it can be difficult to land an opportunity let alone one that really fulfils one's interests. The underlying theme in the advice given by all speakers was to take every opportunity and to make the most of it. This means making yourself stand out head and shoulders above the rest. How? By getting involved in extra-curricular activities, demonstrating good communication skills and showing the "can-do" attitude.

Students were also presented with an insight into the IMechE; who we are,

what we do and how we can help you. Attendees were presented with the opportunity to register for an Affiliate Membership, which gives access to other exclusive events and useful resources. Newly registered affiliate members were given an IMechE branded multi-tool – a useful resource for any budding engineer!

The night was deemed an outright success. Students were exposed to different facets of mechanical engineering through the eyes of industry subject matter experts, had an opportunity to network with like-minded professionals and gained further knowledge about the IMechE.

The IMechE wishes to extend their gratitude to all the subject matter experts for providing their time and valuable insights to the engineers of tomorrow, to Advisian for providing the spectacular venue and organisation and to the IMechE NSW Committee for volunteering their time and efforts in making this event worthwhile for all involved.

**Luke Ramos– New South Wales Panel**



*Delegates at our NSW Panel's Annual Industry Night*

# PANEL ROUNDUP

Latest news from around  
the region

## YOUNG MEMBERS

From a Young Members perspective, there has been active and positive engagement from the majority of student chapters across Australia, including New South Wales, Victoria, Queensland and Western Australia.

Many networking, mentoring nights organised and technical talks have been held and well attended. There are strong plans to expand our reach to more student chapter groups within our current active states and also within South Australia in the coming months.

The Extravaganza event weekend in Sydney will be held on the same weekend as the Speak Out for Engineering Oceania Final in November, with an exciting and exclusive tour of Australia's first quantum computing company - Silicon Quantum Computing's CQC2Ts at the headquarters of the University of New South Wales.

Ibrahim Shahin - Young Members Chair

## VICTORIA

I was delighted and honoured when the Victorian Panel placed their trust in me and accepted my nomination for the post of Panel Chairman in July 2017. I have been a member of the Victorian panel since 2007 and look forward to working with the dynamic Victorian and Oceania Regional committees to promote passion for engineering, the IMechE and provide value to our membership.

The last three months have been busy for the Victorian Panel. In July we had our Christmas in July Annual Dinner which was attended by 25 guests in total. We had two presentations from young engineers from Metro Trains and had a



L-R: Roshan Dodanwela, winner Sharun Benny, runner up Harry Scott

lively evening with a quiz and a paper aeroplane throwing competition.

In August, we had a presentation titled "Introduction to Asset Management" which was organised and partly presented by one of our committee members on behalf of the Wood Group.

We also had the Monash University Formula Student racing team (Monash Motor Sport) present to us on their experiences of the 2016 European Racing Season. Monash Motor Sport won a £3,000 grant from IMechE to help with their expenses of racing in the Silverstone student racing competition. IMechE has had a good relationship with Monash Motorsport and we look forward to building on it.

Also in August, we had a booth at the Monash University Mechanical and

Aerospace Industry Night and signed up 15 new Affiliate (student) members.

In September we ran the Tasmania Speak out for Engineering Competition and also the Victorian Speak out for Engineering Competition. The competition has become popular in Victoria and despite the trials and stresses of organising the competition and promoting in Universities in the last three years, we have had to wait list potential participants as we can only accommodate five speakers in an evening.

I look forward to planning a theme of lectures and presentations on the Energy theme for 2018 and maintaining a vibrant and dynamic Panel.

Roshan Dodanwela- Victoria Panel Chair

## WESTERN AUSTRALIA

In WA our technical visits have focussed on big boys (and girls) toys. We recently visited RCR Tomlinson, one of the leading diversified engineering and infrastructure companies in Australia, supplying the infrastructure, energy and resources sectors. In their workshop they had large fabrications destined for mine sites, huge CNCs and lathes capable of machining pieces over 2m in size, and 'drive-in' heat treatment ovens. A personal favourite was a huge 3m diameter chute under fabrication: constantly slowly rotating, pre-heated by gas burners with a welder sitting on a platform above completing the circumferential welds. It is symptomatic of the downturn here in the west that they no longer run a full 3-shift/24 hour operation, but it was good to see that we still have these facilities operating for the next upswing in the market.

By the time of publication we will have also visited the BAE Systems Henderson facility south of Perth. This is located within the Australian Marine Complex which has been established to provide infrastructure and support to local marine and offshore oil and gas industries. BAE's facility has a 500 tonne load out wharf, 640 metres of dry berth and 250 metre of wet berth capability. A highlight will be the 8,000 tonne ship lift that can accommodate vessels that are up to 150 metres in length and 24.5 metres beam which is the biggest in WA and one of the largest in Australia.

The completion of Professional Review Interviews for elevation to member (CEng) continues, with our interviewers recently completing a refresher course held by a trainer from HQ. I would like to express my thanks to our volunteer interviewers for giving up their time, especially to Jennifer Houston who

coordinates the interviews. Having been through the process myself a couple of years ago, I would encourage any of our local Associate Members considering it to take the next step: after I did, I wondered why I had never done it before.

Andrew Gagg- Western Australia Chair

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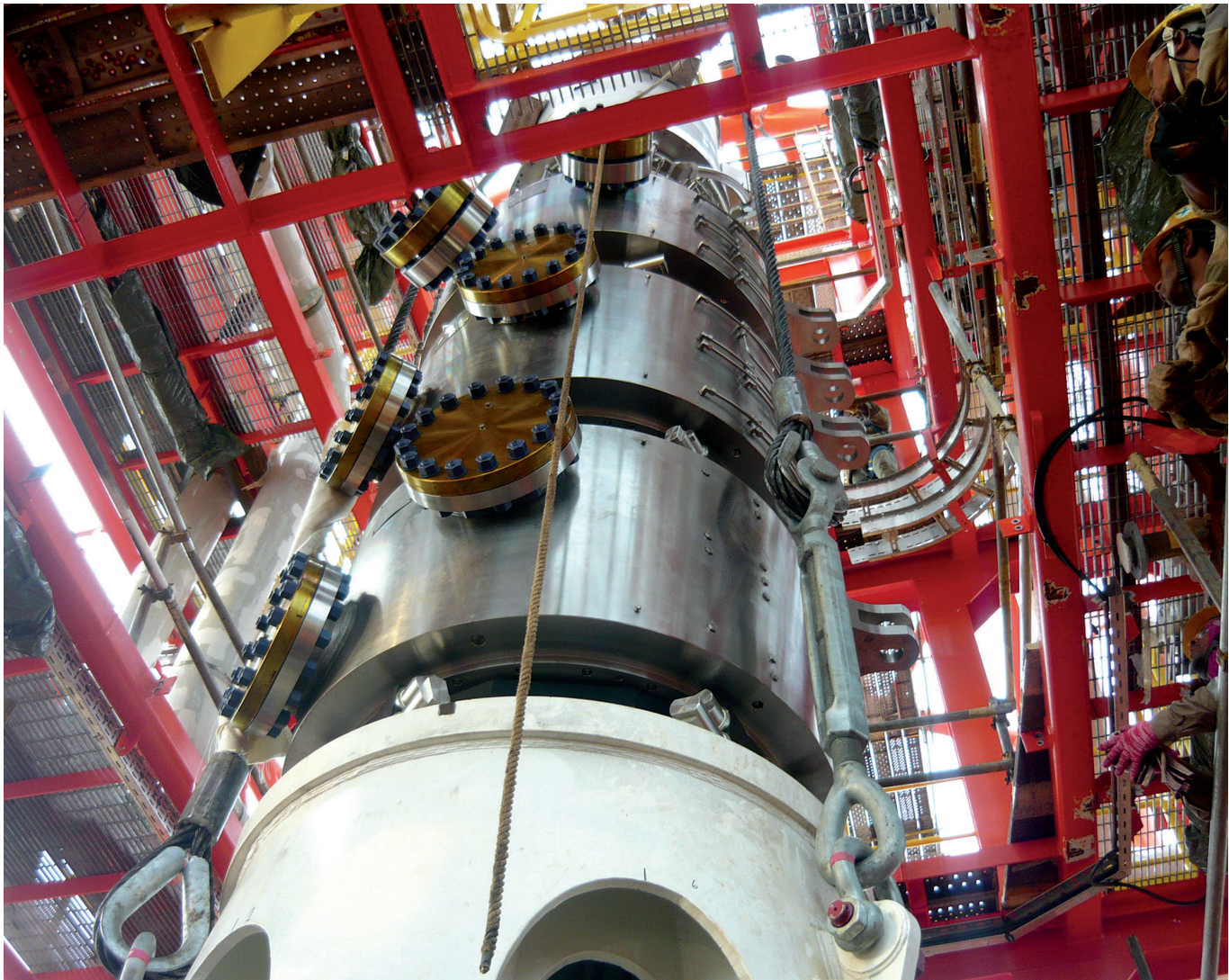


Photo Courtesy of RCR Ltd

# FAIRLY ASSESSING OUR HERITAGE

**Should a significant feat of engineering be celebrated if associated with technical setbacks or ethical concerns? Here's food for thought.**

An engineering project's technical achievements can be easily overshadowed by negative press coverage. From component breakdown to runaway budgets and corrupt management, it seems that notoriety is only a headline away.

Naturally, bad news stories have always sold papers. These days, they are more likely to generate web site clicks. But headlines are what drive public perception of our work over the long term. So when looking back at our history, how do we judge when an artefact deserves respect in the engineering hall of fame?

Technical failure is likely to attract bad coverage. More so if failure of a component cascades to failure of an entire structure, and certainly if the event is accompanied by human

casualties. Causes of failure are often complex. Sometimes, a lack of knowledge is a valid contributor.

Take complex, destructive failure modes. Fatigue cracking is well known to us now and can be modelled, but the engineers of yesterday had limited historical case studies to use as benchmarks, along with far less sophisticated means of testing their product. Preliminary research into fatigue began in the 19th century, followed by the development of predictive methods in the early 20th century. However, even in the 1950s when two Comet airliners broke up mid-air as a result of fatigue, engineers were forced to accept that their knowledge was far from perfect. In particular, they had not yet understood how fatigue occurred in the aviation environment, where pressure and temperature cycles



*The Infamous Tacoma Narrows Bridge*

can affect crack propagation on the corners of windows (which at the time were square).

At other times, failure can be caused by a known hazard which had not been appropriately judged. Those of us who have sat through risk assessments would understand this concept well. Designers can bring the risk of failure towards zero by implementing layer upon layer of controls, but at some point must decide when the effort becomes disproportionate to the gain. Everyone's idea of SFAIRP (So Far as Is Reasonably Practicable) is different. The decision of when to accept a risk depends on assumption, policy, experience and even emotion.

The Fukushima nuclear meltdown of 2011 offers a case study of where misjudged risk resulted in catastrophe. 10 years prior, the plant's operator has implemented measures to protect against failure of temperature control mechanisms should the plant encounter earthquakes and tsunamis. Yet, these measures were insufficient for the magnitude of the natural disaster seen in 2011. Besides considering such an outcome unlikely, it was feared that enhanced safeguards may have triggered public anxiety over nuclear power.

Without downplaying the financial and sentimental impact of engineering accidents, they are an effective prompt for change. The collapse of the Tacoma Narrows Bridge in 1940 heralded a renewed focus on vibration analysis, specifically the possibility for structures to resonate under wind. The Challenger Space Shuttle disaster of 1986, where engineering concerns over the performance of rubber seals in cold weather were overruled by managers, taught us about the importance of balancing engineering needs with commercial deadlines. On a less dramatic level, the Lessons Learnt regime of modern businesses encourages us to view deficiencies as opportunities for improvement rather than failures in their own right.

Rather than allowing redemption, disaster can be the catalyst for the demise of a project. Supersonic

passenger aircraft became the notable victim in 2003 with the crash of the Air France Concorde. The crash dealt the industry a significant blow at a time when it was already commercially vulnerable, condemning subsequent efforts to bring a modified, safer aircraft back into service.

What if an engineer's work operated as intended, but attracted criticism for how it was managed? There are many variations on this theme. It is important to understand that just as technical knowledge is a continually evolving process, so are our moral expectations. Just as we may look back on previous generations and wonder how they ever got by without Personal Protective Equipment or allowed smoking in the workplace, it is likely that our current methods will be criticised by engineers of the future. Perhaps they would mention our continued reliance on fossil fuels for instance?

There is also the question of priorities. Under conditions of stability and affluence, we can afford to focus on things like work life balance, but when war or economic hardship strikes, it is difficult to imagine this being at the forefront of everyone's mind. At those times, crude output would have a greater effect on safety and security of the population, so would have to take precedence.

Budget overruns are common in large projects. Although a source of much criticism, the effects need not be long term if the project secures adequate funding (public or private) to weather the storm. The Sydney Opera House was completed ten years late and a whopping 1,357% over budget. Yet, its status as a world icon, along with presence on the list of UNESCO World Heritage Sites suggests that it continues to be admired as a distinctive building. Meanwhile, the Channel Tunnel experienced significant financial difficulties during its first five years of service, even coming close to bankruptcy at one point. It eventually saw traffic and profit grow to sustainable levels.

It is possible that the controversy surrounding an idea leads to other, more benevolent results. Consider

Alfred Nobel, the creator of dynamite. After reading a premature obituary of himself which condemned dynamite for contributing to the arms industry, Nobel was inspired to create the famous series of prizes that bear his name, including the prestigious Nobel Peace Prize. It gave Nobel a chance to ensure something unexpected and positive had come out of his work.

In Engineering, as in our personal lives, we are always going through an ongoing process of trial and improvement. A process where disaster teaches more than success and controversy brings greater attention than compliance. But these need not necessarily diminish our work. With the case studies mentioned in this article, it is perfectly reasonable for us to admire the technical achievements behind a project while also acknowledging the technical and ethical concerns that went hand in hand with them.

When placing historical engineering and engineers in a hypothetical modern-day court, we should try not to judge them too harshly through 21st century technical and moral standards, for we are on continuously shifting sands. Instead, evaluate what knowledge and societal expectations were available at the time. And if deficiencies came apparent, seek to understand what events were set in motion to improve the product, the industry, or the world at large.

Nic Coulthard -Editor

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# APPS FOR ENGINEERS

**'E-Torque' magazine, a joint publication by the IPENZ and IMechE, has a regular feature exploring the best smartphone based tools for engineering professionals. Here are a few you might like to try.**



## 1. HiPER Scientific Calculator

HiPER Scientific Calculator is a popular calculator with rapidly growing downloads and high user ratings. The calculator has 15 digits

of significance and 3 digits of exponent in its free version, and up to 100 digits of significance and 9 digits of exponent in HiPER Calc Pro. It detects repeating decimals and numbers in it can be also entered as fractions or converted to fractions.

The Pro version has the "expression" mode where you can write expressions in a natural way and watch your calculations. When possible, an expression is simplified and the result is displayed as an expression using fractions, square roots and constants.

The calculator has several layouts suitable for various screen sizes:

- "pocket" for small devices
- "compact" for smartphones (in portrait and landscape orientation)
- "expanded" for tablets

The multiline display can be turned on in tablets to show the complete history of calculations and to provide access the previous results. Users can choose from several high-quality themes.

## 2. Rolls Royce UltraFan

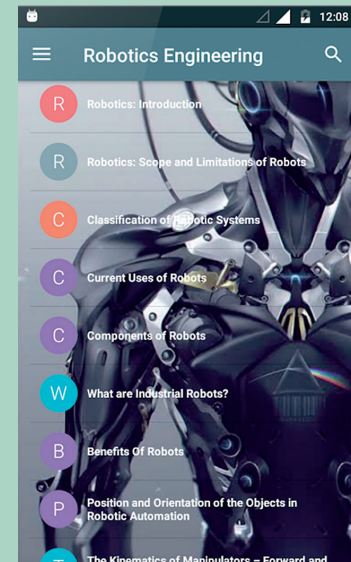


The Rolls Royce UltraFan™ engine will be available from 2025, offering at least a 25% improvement in fuel burn and emissions when compared to current jet engines.

The Rolls-Royce UltraFan app- available now- showcases this engine and allows aviation enthusiasts and industry professionals to get an entirely new view of the engine, all in fascinating detail and showcasing the use of high technology and innovation. App features include:

- 360 degree views of the engine
- UltraFan and more electric UltraFan engine models
- Pinch and zoom in to view incredible detail in the realistic 3D engine model
- Wealth of information about the key enabling technologies and systems
- Once zoomed into the engine, a three finger swipe pans the engine across the screen
- Turn on / off information hotspots

## 3. Robotics Engineering



This Robotics Engineering App provides the basic know-how on the foundations of robotics: modelling, planning and control.

This complete guide takes an introductory approach to robotics, guiding users through the essential electronics, mechanics, and programming skills necessary to build their own robot. This App is focused on geometrical models of robot mechanisms.

The App is a real walk through the fundamentals of robot kinematics, dynamics and joint level control, then camera models, image processing, feature extraction and epipolar geometry, bringing it all together in a visual servo system.

Useful to - Researchers and graduate students in robotics and automated systems, electrical and mechanical engineering, international economics, artificial intelligence and machine perception.

# DELIVERY BY BOT

**Could autonomous vehicles replace humans in the art of postal delivery? Some well-known companies are already on to it...**

As any home service business knows, deliveries can be a complicated affair. That's why a number of firms are trialling innovative ways of getting products to their customers.

Amazon's Prime Air service is a delivery system designed to safely deliver packages in 30 minutes or less using unmanned aerial vehicles, also called drones. Prime Air is described as having 'great potential providing rapid parcel delivery that will also increase the overall safety and efficiency of the transportation system'.

Pizza chain Dominos made the news in 2016 when it announced a plan to deliver pizzas by drone to customers in New Zealand. Dominos said they invested heavily to provide their stores with different delivery fleet options such as electric scooters and e-bikes.

Another initiative Dominos were keen to advertise was the DRU, or Domino's Robotic Unit. DRU is described as a four wheeled vehicle with compartments built to keep the customer's order piping hot and drinks icy cold whilst traveling on the footpath at a safe speed from the store to the customer's door.

Not wanting to be outdone, Australia Post has just launched a new parcel delivery service using an autonomous, ground based robot. However, it is having to overcome a fair bit of scepticism from experts who say is of limited use and resembles an "Esky" on wheels.

A four-week trial of the "mobile parcel locker" began mid-November in the

Brisbane suburb of New Farm. The small self-driving container, nicknamed "Billy the Box", takes packages door to door and unlocks via a unique code that is texted to users. The problem is that the prototype must be accompanied by a human Australia Post employee, and can only hold one parcel at a time.

Queensland University of Technology robotics expert Peter Corke told the New Daily the current model's rudimentary technology raised concerns.

"How does it cross the road?" How do you stop it from being picked up and put on a truck and taken away? To require a robot and a human to deliver one parcel when one guy in a truck can deliver a number of parcels without a hitch is not worth it ... At face value it doesn't sound very useful."

Australia Post's chief technology officer, Tien-Ti Mak, said the robot would be hard to pick up and steal because it weighed roughly 100kg. Other safety features include LED lights, cameras to record its journeys, and Roomba-like sensors to detect and avoid obstacles.

The robot can drive on all surfaces, and was shown in videos going up a slight driveway incline. A spokesman for Australia Post said there was no indication of when the robot could operate without a human minder, or carry more than one parcel.

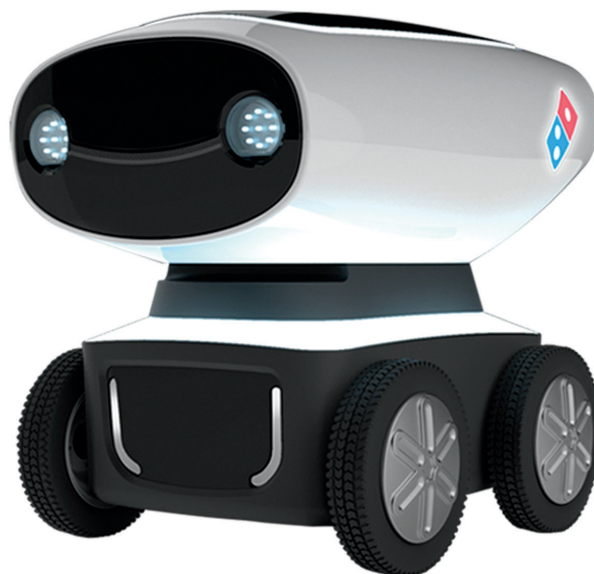
So what would professional engineers make of these ideas? Well, innovation of any form is to be applauded but must also be commercially viable. What we are seeing here is the first tentative steps into new territory for businesses experimenting with new ideas that could one day increase efficiency and cut costs.

While these ideas probably not much use right now and are potentially a source of amusement, they are providing research and design teams with vital real world experience and funding. If trials prove reliable when the product is of limited use, and if public support is there (no doubt aided by the machines' cute design and nicknames) project sponsors will be encouraged to build on capacity and capabilities, until eventually a valuable business tool emerges.

So next time you order something on the internet, think of DRU, Billy and their army of airborne friends. It might just be one of them who is tasked with delivering that brand new purchase to your door.

Nic Coulthard -Editor

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DRU – The Dominos Robotic Unit

# 2018/2019 AUSTRALIAN BRANCH OFFICE BEARERS

## We are pleased to announce details of next year's AGM and election.

There is a requirement for each branch to hold an AGM each year, prior to the Institution's AGM in London in May. The next Australian branch AGM will take place on Saturday 10 March in Sydney.

At the Australian branch AGM, the Office Bearers for the 2018/2019 year will be announced and take up their positions during the third week of May for a 12 month long period.

Below is a nomination form for the 2018/2019 Office Bearers. All positions listed are vacant. The first stage is for members to nominate a person of their choice for a specific position using this nomination form. The form must be countersigned by the nominee to ensure their acceptance. Please email the nomination form to Ian Mash at the address below, to arrive no later than 31 December 2017.

A list of nominations and a ballot paper will be sent to all members in early February 2018. The closing date to submit ballot papers is 28 February 2018. Results of the ballot will be announced at the branch AGM. Please note that there will be no voting at the AGM.

IMechE Australian Branch Nomination Form (2018/2019 Office Bearers)

Please sign, scan and email this completed form to: [ian.mash@snclavalin.com](mailto:ian.mash@snclavalin.com)

Dear Sir,

I, .....nominate.....for the position of (tick one box below):

Position on Australian Branch Committee	
Australian Branch Chair	
Australian Branch Honorary Secretary	
Australian Branch Assistant Honorary Secretary & News Bulletin Editor	
Australian Branch Young Member Section Chair	
Australian Branch Honorary Treasurer	

Yours faithfully.

.....  
(Signature of nominator)

.....  
(Date)

.....  
(Membership Number)

I, ..... accept this nomination

.....  
(Signature of nominee)

.....  
(Date)

.....  
(Membership Number)

Nominee: Please include with this form a short statement (~100 words) giving details of your education, career, date of joining IMechE, involvement with panel, branch or region and your vision for the nominated position

### Exec Committee:

Andrew Lezala, Leslie Yeow,  
Ken Tushingham, Nic Coulthard,  
Ibrahim Shatin.

### Websites:

IMechE  
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