

NEWS FROM COMPUTER SCIENCE AND ENGINEERING

Written by the Beta Team of CSESoc
Produced by Angelo TAMAYO
Edited by CSESoc Beta Team

BETA

In Beta we Trust

Beta Issue #98
Kappa Edition
Week 9 Session 2, 2014

DEVSPACE, 3D PRINTING

The Not-Too-Distant Future of 3D Printing

Today, we can print a lot of things but I want you to think bigger. What else can we print? The brightest (or scariest, depending on your perspective) part about this is that it may not even be so far into the future that these ideas become a reality.

3D printing is the act of printing some physical object from some 3-dimensional digital model, which may have been hard to believe 10 to 15 years ago. By the way, check out Devspace on the 3rd floor of K17 to print anything you can find or make a model of (as well as a bunch of other cool tech toys)!

The standard procedure is to heat plastic, draw it out one flat layer at a time, and push the platform down (or the nozzle up). Nothing in this process screams high tech; the industrial processes that have been available for a while are much more sophisticated and powerful. The main thing that 3D printing provides is freely available commercialism.

Suddenly, the whole game changed. By letting the consumers become the players in the industry, we have seen dramatic shifts in what 3D printing can do. People have been able to 3D

print food; it may be lollies at this stage but couple this with stem cell research into genetically artificial meat and there might be potential for more. This could also be made to produce leather in which no animal is harmed.

system rejection as the 3D printed organs could be tailored to the individual.

Some of you may raise concerns about the ethics and naturality of going



In a similar way in which the printing press severely reduced the need for handwriting, we can see a change in how products are made. Companies will soon realise how much cheaper it is to 3D print products than have them made overseas by manual labour.

There is also promising research into 3D printed organs which would allow organ transplants to be more freely available and avoid issues of immune

down this path but it is unlikely that policy will be able to keep up at the rate that technology is advancing.

I could go on and on about the various fields that 3D printing could drastically change but the trend is very clear: 3D printing is going to make an unprecedented impact. I'll give it 20 years, tops.

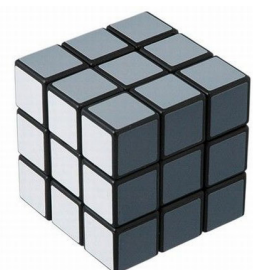
MICHAEL NAM LEE



The Trouble with T-Shirts
- page 2-3



Sunswift - page 4



News in Brief - page 5
Crossword - page 5

OPINION, CULTURAL REVIEW

The Trouble with T-Shirts

T-Shirts in Tech

Understanding typical culture in computer science faculties, as well as tech companies, can be difficult for those who haven't been exposed to the environment. The best analogy I've come across is to pretend you're a really geeky 8 – 12 year old boy. What sort of things to geeky boys like?

- Computers
- Caffeine
- Video games
- Junk food
- Scooters
- Bean bag chairs

And just like this, you're three quarters of the way to what the CSE basement wants to be, and almost the whole way to a real life tech startup.

So where do T-Shirts fit?

T-Shirts are an integral to the computing culture, and have been for as long as the culture tore itself away from maths and science. From coolness ratings to social cohesion, t-shirts have evolved with computing to become one of the hallmarks of the field; we don't get Obama allowing anyone else to dress like children at work.

Incentives

When push comes to shove, there are some things that matter more than money (sorry finance students!). Even money itself means different things when presented in a different way: for example, the \$200 worth of bread needed to cover main walkway with toast is perceived as having a totally different value to a new set of \$200 headphones (and let me tell you, one of these things is more fun). If you've nabbed an internship with a cool company, or you've been working really hard on a project which has come out awesome, a t-shirt is a



better prize to show off that hard work than a monetary bonus. Money goes, but t-shirts persist until they fall apart in the wash. And trust me, I've seen some legacy shirts walking around; they'll last longer than any bonus ever would.

Cohesion

Have you ever noticed, walking around the basement, that there are t-shirt themes from time to time? And have you noticed that everyone seems super pleased that they're one of the matching ones? There's a reason for this, and that reason is cohesion.

In comp, t-shirts play a similar role to suits in the corporate world; they allow everyone to feel a part of something larger than themselves, an elite "family". Heading into tech, one of the first things I did was to attend a series of events and grab t-shirts at every opportunity I could (yeah, I know, I had my priorities straight). It made a real impact on how I saw myself (I was one of the cool kids then), and even the way people treated me. When I was swanning around in dresses, nobody batted an eye, but put me in a t-shirt and suddenly people were asking me questions like I knew what I was talking about. I'd become part of the group, and because I'd done this so fast, people assumed that I'd been there for ages!



As well as creating a sense of cohesion, people genuinely enjoy wearing their favourite "brands". Tech people are lucky insofar that brands also want us to wear (and promote) them. Choice in t-shirts showcases what you're interested in, and lets

you find similarly minded people without too much effort. Its far easier than rebooting your phone every five minutes to show Cyanogenmod's boot screen, and doesn't die as fast as stickers (bonus: t-shirts are more practical than either of these).

Rewards for Merit

Computing as a field has a greater focus on merit than pretty much any other walk of life. Side projects, repo commits and work projects all contribute to seniority (and hireability), as well as to knowledge. One way that this is reinforced is via "reward" t-shirts.

Did you get in to that summer camp in 2013? Have a t-shirt; we redesign them every year. make it as an intern in 2012? There's a special shirt for that too. In a socially acceptable, non (overtly) bragging way, t-shirts communicate a form of reward that is structured and "fair"; you work, you're rewarded. Easy.

Empowerment

You may think it strange that I put this last in the list of reasons, as it's a pretty universal one. Its very true that everyone wants to be empowered, but the way that t-shirts empower people in the workplace is much more marked than the way it empowers us at uni

CONTINUED ON
NEXT PAGE

OPINION, CULTURAL REVIEW

The Trouble with T-Shirts - contd.

T-Shirts in Tech

(protip: in most jobs it isn't okay to wear t-shirts to work).

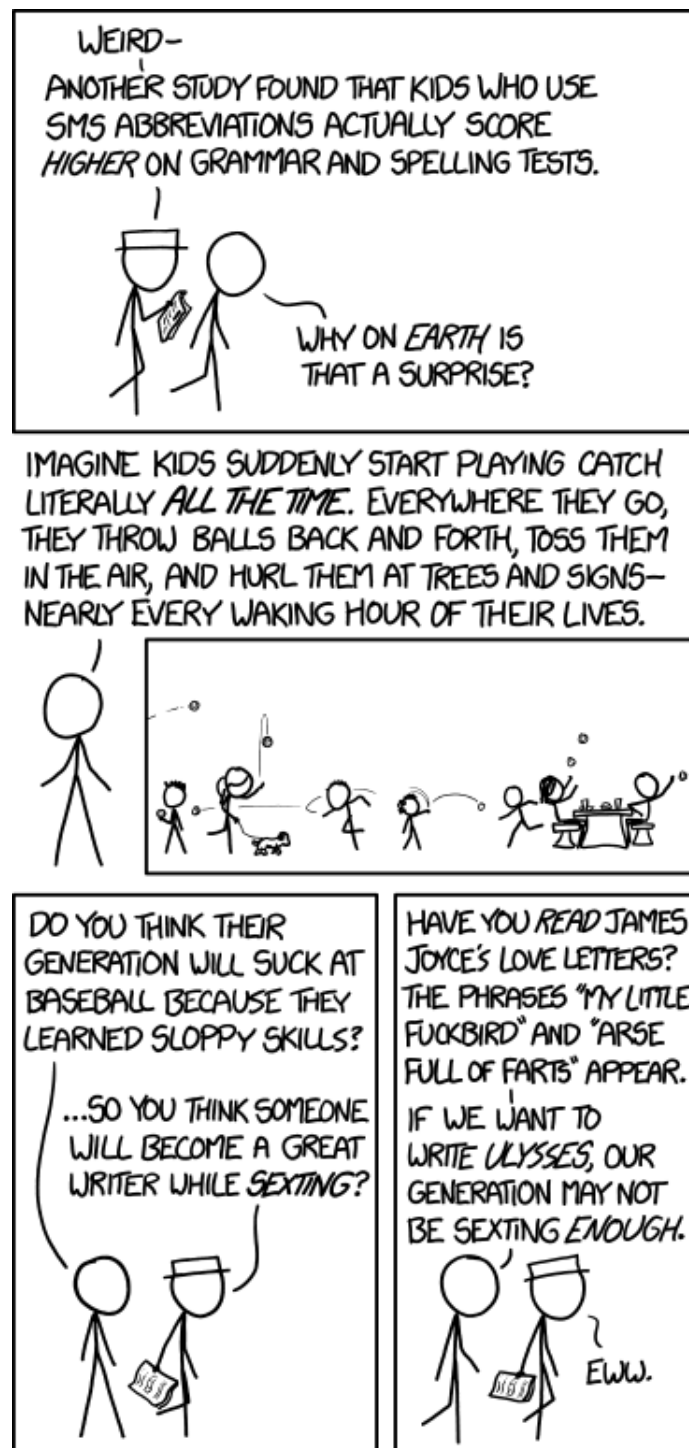
When you get down to it, t-shirts are the universal yardstick for how switched on a company is and how in tune they are with their employees. Not having a strict dress code tends to reflect a wider environment of flexibility and a focus on product, not

presentation. Most major companies (Google, Facebook etc) in the field actively encourage that level of dress, and reinforce it with company t-shirts (its self fulfilling like that).

Ultimately, t-shirts are like medals for us nerds; we get a sense of cohesion with our fellow coders, we get rewarded for doing cool things, and we

don't have to wear suits. So next time you do a cool thing, grab a t-shirt on your way out and wear it with pride. There's a good chance the rest of us are staring at you enviously.

EMILY SAUNDERS
WALMSLEY



UNIVERSITY, SUNSWIFT, CARS

Sunswift Q&A with Hayden

"[This is] Sunswift team's journey to make a road-legal and road-registered vehicle that can stand as an example of an efficient and ecologically friendly vehicle that is ready for day-to-day use."

- Gizmodo

Who are you and what do you do for Sunswift?

My name is Hayden Smith, and I'm the project director for "Sunswift" - the UNSW Solar Racing team. My role predominantly centres around event management, human resources, and organising / coordinating our engineering and business teams.

What is Sunswift?

Sunswift was established in 1995 - and since then has built 5 solar cars. It's a team that centres around building and racing experimental solar cars. The team is well known for participating in "that big race", i.e. the World Solar Challenge - a biennial race from Darwin to Adelaide. This race is competed in by dozens of international universities (the big names - Michigan, MIT, Stanford). The race typically takes 6 days, and Sunswift has traditionally done very well.

It is a huge event! We take 6-7 cars, travelling in a fleet at 120km/h through 3000km of the Australian desert. During the race, the car operates on a mixture of solar power and electrical power (charged at the grid, and stored within internal batteries).

Who is Sunswift?

Sunswift is a team of undergraduate Engineering students! We are pretty much strictly undergraduates, and cover nearly every engineering school and non-engineering faculty. The car requires an insane amount of collaboration - aerodynamics, electronics, mechanics, software, chemical, renewable, photovoltaic. We also operate a systems Engineering team to stitch everything together.

More importantly - we have entire teams of non-engineering students! We have industrial designers, commerce students, COFA students, marketing

students. If you name it, someone on the team probably studies it.

Tell us about eVe.

eVe is one of a kind solar car. It's one of the first "practical" solar cars to ever be built - and it was built by University students. The core principle of the car isn't high capacity batteries, or super-charged motors - but rather an effective use of the energy we have. At 100km/h the car operates at approximately 3 horse power.



The car itself weighs less than 350kg, as it is built out of high quality carbon fibre - a material as

strong as steel but with a fraction of the weight. The car also has a unique and sleek aerodynamic shape - creating what is most likely the lowest co-efficient of drag for a passenger vehicle anywhere in the world!

The car has two seats, two doors - your usual steering wheel, handbrake, indicators, etc.

The next big stepping stone for eVe is to make it a "road-legal" solar car. This means adding everything your typical car would have so that we can get it running on the road. Look out for eVe on streets near you!

How was your record breaking attempt at Geelong?

Heading down to Geelong to attempt



a world record was a once in a lifetime experience. There is something about being in south of the country, in the middle of winter, camping in tents...

20 undergraduate students - with nothing to do than to try and break a world record.

The list is endless:

- Sitting in the camp site late at night, using torches to make last minute changes on the cars.
- Waking up at 4am every morning, huddled around in the 1 degree temperatures, trying to shove down breakfast before beginning a 12 hour day
- Standing on the track, watching our car fly past at a maximum speed of 132km/h
- Seeing the car complete the final lap, and successfully break the record.
- Going to Grillo for dinner the night after the attempt...
- Driving down the Hume highway in a fleet of 4 cars



It was truly a one of a kind experience.

We broke a 26 year old world record for the fastest electric vehicle over a 500km distance. With the previous record at 73km/h, we broke it at 107km/h.

I want to see your car in action! Where can I go?

You can visit our website at www.sunswift.com, or check out these cool videos:

<https://www.youtube.com/watch?v=kcqF99b1uJw>

<https://www.youtube.com/watch?v=H2yxo0a2NrI>

<https://www.youtube.com/watch?v=ihwmtRQngcc>

HAYDEN SMITH

NEWS

News in Brief

Oh Deer!

Two deer were seen crossing the Golden Gate Bridge. The pair was heading north and hit the bridge at around 5:30 pm, just like a lot of other people. Luckily commuters stopped to let the two cross, finally making it safely off the north end of the bridge by 6 pm.

Woops

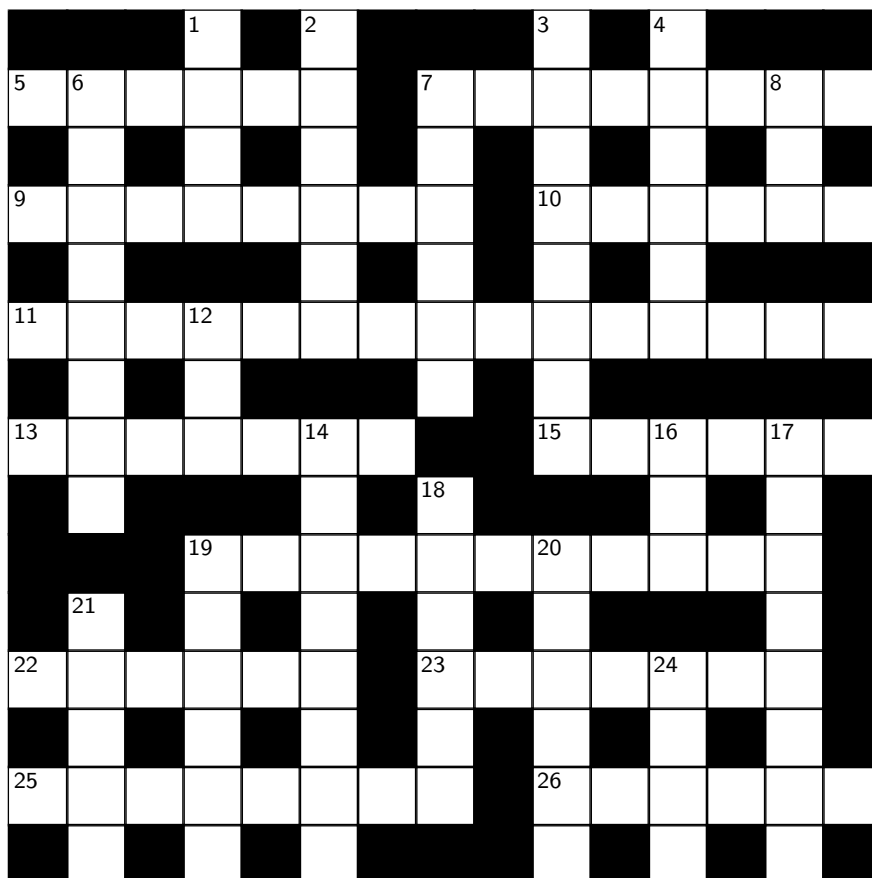
Kiwis keen to get a hand on the hacked photos of naked celebrities are being blamed for a nationwide inter-

net meltdown involving the country's main ISP. It is believed a handful of



computer users clicked links on Friday evening believing they would take them to the illicit images, but instead installed malware triggering a DoS attack. It wasn't until Sunday that Spark (previously Telecom Corp) was able to repair the damage they called a "dynamic cyber-attack" which overload the system serving more than 600,000 customers.

DYLAN KELLY



OSWYN BRENT

Down

1. CS Term - Unit _
2. Discoverer of logarithms
3. Universally accepted scientific theories at a given time
4. Muppet - _ the Frog
6. Elementary arithmetic operation
7. With 23. Across, used to represent complex numbers on a cartesian plane
8. Statistics - Independant and identically distributed

Across

5. Single celled organism
7. The community of individuals in higher education
9. Objects worn on the body
10. Spanish naval fleet
11. The process of finding a derivative
13. Russian mathematician and economist

12. Old file system architecture
14. Hobby involving needles
16. Prefix - New
17. A group
18. Computer Graphics - generate an image from a model
19. Place of worship
20. Culture from which our numerals are drawn
21. Most common result from rolling two dice
24. Recent programming language from Mozilla

15. Founder of genetics
19. Three-horned dinosaur
22. French mathematician, many theorems and principles named after him
23. See 7. Down
25. German doughnut, has no hole
26. An offensive expression

CSE EVENTS AND SOCIETIES

Upcoming Events

CSESoc goes to CSE Revue

Thursday 25 September 7pm

Science Theatre

Come and support our friends CSE Revue by watching the show they spent all semester preparing for: Game of Codes. We can't replace the Sunday Night (or Monday morning) episode - but instead we'll be going on Thursday Night! Please RSVP (by clicking attending on the Facebook event) ASAP so we can get enough box seat tickets!

Freelancer Tech Talk

Thursday 25 September 4-5pm

Seminar Room K17

Quadruple Webby award winning Freelancer.com is the largest freelancing and crowdsourcing marketplace in the world. Freelancer.com connects over 13.1 million independent professionals globally, specialising in nearly 700 fields. Over 6.4 million projects have been posted to date, in areas as diverse as website development, logo design, marketing, copywriting, astrophysics, aerospace engineering and manufacturing. Freelancer.com is the marketplace where the world gets work done.

They look forward to presenting an open conversation with CSESoc concerning the engineering challenges face them as they scale their tech to handle 100 million users and how you as interns and graduate employees can have a direct impact on the solutions.

Soctail - CSESoc Cocktail Party

Sunday 2 November 7pm

Ivy Penthouse - 330 George St, City

This is our last event for 2014, a time to get a little bit fancy and celebrate the end of the uni year with friends. Held in our very own private function room - the Ivy Penthouse,

with a massive bar tab, delicious canapes, pumping music and an amazing view, this is something you don't want to miss! Prices are \$35 for early bird tickets. Get them at our website now!

AGM

Friday 10 October 2-3pm

Seminar Room K17

It's that time of year that CSESoc holds its Annual General Meeting to update everyone on what has been happening behind the scenes and to open up nominations for executive positions. It's a great time to ask any questions about the society.

Midsem Bike Ride and Picnic

Wednesday 1 October

Starting from UNSW

Join our magnificent bike across the galaxies of Sydney, from UNSW to Sydney Olympic Park (and back again if you dare!). We'll be having pit stops along the way (TBA), and the idea is for us to ultimately meet up in the sunny confines of Bicentennial Park.

Hackathon

Saturday 11-13 October (midnight - midnight)

Anywhere

The hackathon will run for 48 hours over the weekend of 11-12th October - that is, from midnight Saturday morning to midnight Sunday night.

The subject for the hackathon will be released on the 15th of September.

CSESOC BETA HEAD

This Edition of Beta is Sponsored By...

**Jane Street****pwc**
accenture