



ISSUE 28.5

CAMPUS

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TECH INDUSTRY BY THE NUMBERS

THE DOWN LOW IN THE TECH INDUSTRY

30% 
of IBM employees
worldwide are women.
- IBM website

Software analysts have been listed as one of Singapore's top 10 highly paid jobs, earning between

\$4000 - \$7000/month

- Yahoo Finance Singapore

Jobs that are in demand in the tech sphere include:

**analyst programmers,
software engineers,
database/network &
computer systems
administrator.**

- Ministry of Manpower, Nov 2012

A pay hike will happen across the board for most industries in 2014 because of the economic growth, specifically those in

**banking, oil and gas,
and technology sectors**

which will see the highest increase in salaries.
- Hay Group Singapore.

Singapore has been ranked
2nd in the world in terms of
adopting and utilising
technology the fastest.
- World Economic Forum, 2013

**Over 80 of
the top 100**
technology companies can be found in
Singapore. Of which, the top 15 companies
have their regional headquarters here.
- Economic Development Board Singapore

Singapore's three favourite companies to work for in 2013 were all technology companies:

**IBM, Microsoft
and Accenture.**

- LinkedIn

The starting monthly salary for most IT fresh grads is

\$2,718

- JobStreet Singapore

The overall employment rate for graduates of Bachelor of Computer Engineering from NUS and NTU are both above

90%

- Graduate Employment Survey 2012, Ministry of Education Singapore

Non-tech careers in the tech industry earn equally well too. For example, Google's financial analyst earns

S\$133,046

compared to their network engineers who earn

S\$110,707

- Business Insider

NON-WIRED TECHNOPRENEURS

You don't have to love algorithms to make it in the IT industry, as many of the flourishing tech companies we see today were actually established by legions of untrained tech amateurs that simply had innovative ideas. For your inspiration, here's a list of non-technical founders who have made quantum leaps in the wired industry.



ANDREW MASON

After graduating with a music degree, Andrew Mason – the man behind the deals and savings we all relish – created Groupon in 2003. A multi-instrumentalist with a rock band, Andrew has a passion for building things from scratch, which propelled him to whip up this coupon-loving website. Though fired from the startup he created because of his sophomore gaffes, Mason is currently working on another project called PlayTank, which is a social network focused on connecting individuals who have creative projects in the works and are looking for collaborators.



DAVID SACKS

Another firm believer in selling-on to bigger corporations, David Sacks – a law and economics graduate – is a multi-millionaire responsible for creating PayPal, which he sold to eBay for \$1.7 billion. He also has his hands in Yammer, a social networking site for businesses which he sold to Microsoft for \$1.5 billion. Having lent a hand in the creation of LinkedIn and Yelp, Sacks continues to invest in several tech startups, like Kloutless and AdStage, while looking for the next big thing.

DAN PORTER

With a Master's degree in Latin studies and previously a public school teacher, Dan Porter is far from the average technopreneur. Porter not only created Zynga (a social game on Facebook like Farmville or Bubble Safari), he's also played a role in formulating Draw Something, which is a mobile game that went viral and continues to be addictive for many. With three #1 apps under his belt, Porter's large chunk of success comes from the sale of companies he's founded to bigger tech companies – he ran TicketWeb for a while before selling it to TicketMaster.



BEN SILBERMANN

Voted an 'Unlikely Tech Entrepreneur' in his university's alumni magazine, Ben Silbermann, a political science graduate, first found his footing in the tech industry through working in the sales department at Google. An ardent tech blog fan, Silbermann knew he had to get into the tech startup game, and he did so by creating Pinterest. Working together with a couple of friends – who also come from non-technical backgrounds – the trio managed to take a simple pinboard-style website and transform it into a tech star.

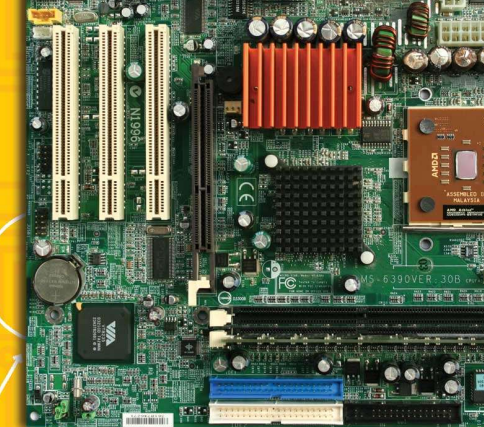


RASHMI SINHA

A PhD student in Cognitive Neuropsychology, Rashmi Sinha moved to San Francisco to complete postgrad research. While living there, she caught the tech bug and secured her place in the tech sphere by creating Uzanto – a user experience consulting company that lent their expertise to companies like eBay. After working in the field for a while, Sinha created her own tech product, MindCanvas, which aids in collecting research about online user preferences. She also co-founded SlideShare, which is a website every student has turned to at some point of their late-night studying.



THINK WITHIN THE BOX: GOING TECH



Singapore is ranked as one of the most technologically advanced nation in the world, and is home to the regional headquarters of a multitude of tech companies like Google, Microsoft and Oracle. Singapore also often welcomes (and even funds) the latest technology, which means the prospects for local tech careers are always growing – whether you're in a startup or an established firm.

Globally, there are plenty of opportunities too. While the misconception is that most tech companies are clustered in Silicon Valley, plenty of other countries have their own tech clusters like Silicon Glen (Scotland), Silicon Wadi (Israel) and Silicon Fen (UK). This means working for a tech company could also promise international opportunities.

HOW TO JOIN THE TECH INDUSTRY?

Deciding to take up a technology-related job can be quite daunting if you don't have an IT degree or a programming background. However, the tech industry is diverse and has plenty of room for non-technical staff. In fact, you don't even have to speak a computer language (think C++ or Java) to get into the industry – there's room for everybody, so here are just some of the career options to consider:

PRODUCT MANAGEMENT:

Essentially a marketing role, product managers deal largely with marketing the goods as well as managing the personnel that will be involved in consumer-outreach (depending on the size of the company). Think of a 'sexy' brand like Apple – it's all in the marketing.



SOCIAL MEDIA & ANALYTICS MANAGEMENT:

Due to the evolving nature of technology, the analyst's role often involves studying previous trends to predict future trends and habits of users by using tools like Google Analytics. The info is fed to the marketing team, who then predict the next big thing – since even #trending needs help to happen.

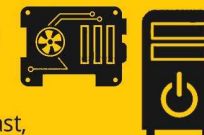


SEO MANAGEMENT:

For those who enjoy wordplay, search engine optimisation is a marketing role that involves researching the latest topics and words that are trending online, and using them to advertise or sell their company's products. For example, Google wouldn't be so successful if it wasn't for SEOs.



WHAT IS IN THE TECH INDUSTRY?



Tech companies of today look very different from the old days. In the past, names like Hewlett Packard or IBM were mainly known for making computing products and hardware like motherboards. But over the years, they have become part of an entire value-chain of associated stuff – with the actual hardware makers taking a back seat to brands like PayPal and Spotify, or anything else to do with the internet. To put it another way, today's tech industry leverages on technology itself, rather than simply building hardware that runs software, meaning a career in the tech industry these days could be pretty much limitless.



DESIGNERS

From designing the interface of web pages and apps with the product, down to the packaging, designers are in demand in the tech field because dull, black boxes don't fly off the shelves anymore. Your iPhone wasn't 'designed' by techies. Neither is the blue Facebook logo that you've come to know so well. Good design sells itself.



SUPPORT STAFF:

As most tech companies don't deal with their customers face-to-face, successful companies need strong back-room support staff to handle all the customer relations. If you're good with PR, and relish solving problems, this could be for you.



HUMAN RESOURCE:

If you like organising and have an eye for putting the right people in the right place, then an HR job in a tech company would seem as easy as connecting the dots.



TRENDING TECHNOLOGY

BY LAKSHMI GANESAN



PANOMO CAMERA BALL

The shelf life of technology has always been known to be short, especially since corporations all over the world are looking to outsmart one another in coming up with the next big thing. So to keep you ahead in this fast-changing industry, we've picked a bevy of gizmos that will probably be relieving many of your everyday activities.



PEBBLE STEEL WATCH

PEBBLE STEEL WATCH

Smartwatches have always been seen as the epitome of futuristic technology, and now they're penetrating the tech market at a rapid pace. The latest release in the smartwatch sphere, the Pebble Steel Smartwatch allows users to download apps, play games, works as a GPS system, and to top it off, it's waterproof. In terms of design, this gizmo is sleek, trendy and comes in a variety of colours, and syncs with both Apple and Android phones.

NO MORE SUNBAKING

The urge to stock up on creams that promise to reverse sun damage can now take a back seat with the latest wearable tech: June, a bracelet which is able to measure and track the amount of UV rays your skin is absorbing. It's also able to calculate the amount of exposure you're able to withstand until the sun starts to damage your skin. Made by the guys from Louis Vuitton and Harry Winston (which explains its elegance), this bracelet sends its readings to a mobile app that alerts you of the sun exposure you're receiving, and when you should start grabbing sunblock and big hats.

JUNE BY LOUIS VUITTON & HARRY WINSTON



PANOMO CAMERA BALL

Panorama shots have been making their way into social media newsfeeds for quite a while, but the Panomo Camera Ball takes it to a whole new level with its 360-degree pictures. This ball is installed with 36 tiny cameras which can be activated in 3 different ways: by throwing the ball into the air, by holding the ball and pressing a button or by holding it up with a stick. Once the ball is thrown into the air, the cameras automatically click a shot at the highest point to minimise blurriness. The images from the Panomo camera ball can be viewed on a phone or tablet with an app.



LG HOME CHAT

HELLO, MINIONS

Ever felt like having your own exclusive minions? The LG Home Chat has made that possible by your utilising home appliances. Gone also are the days where verbal command was all the rage; with LG Home Chat, all that's needed is a text sent to the appliance with a command. So you can turn on your washing machine or air conditioner, or even check what's in your fridge while you're away, all with a simple text message. The only catch is that you'll need to own these LG smart appliances.

PAY THE BILLS WITH YOUR VEINS

Currently you can pay with the touch of a card, but what if you could pay with the touch of your hand? With the PulseWallet, all you have to do is swipe your hand over a reader, which will then scan your palm to read the configuration of your veins (it's unique to each individual). Once the reading is approved, it will then be synced to your credit/debit card for transaction.



PULSE WALLET

Campus | Issue 28 | 09

Unbeknownst to many, Singapore has been contributing to the technological advancements with a string of gadgets that has not only impacted the local tech scene but globally as well. Take the movies The Avengers for example - if you liked the special effects, you can thank the team of CG artists, many of whom were from Singapore's Industrial Light & Magic studio.

Here are some of Singapore's best tech discoveries.

SINGAPORE TECH ON THE WORLD STAGE

BRAVE FRONTIER

If you're a fan of mobile gaming, then the game 'Brave Frontier' might ring a bell. This role-playing game on iOS and Android has elevated the made-in-Singapore tag to world status with its 1.2 million downloads from gamers across the world. This Japanese-style game (developed by Gumi Asia) has had numerous other hits under its belt, with Monster Blade and Puzzle Trooper all also crossing the million download mark.



THUMB DRIVE

Ubiquitously used, the thumb drive was the creation of Trek Technology, who joined forces with IBM in 2000 to sell them. Replacing the then-common floppy disks with 8MB of storage capacity, these nifty gizmos were soon replicated, as many tech companies saw its promising nature. To prevent the infringement of their patents, Trek Technology and IBM demanded royalties from several big companies; however, smaller tech companies managed to get scot-free, so the deluge of flash drives continued.



X-MINI SPEAKERS

Probably found at every picnic in Singapore, the portable X-Mini speakers are another Singapore invention that has gained its footing internationally over the years. Created by XMI Pte Ltd, they packed sub-woofers, bass and volume into a pop-up capsule-looking speaker that has won numerous global awards (from Germany's prestigious Red Dot Design award to the Infocomm Singapore Award). With its international celebrity endorsements - like Jay Park - the brand continues to be leading speakers both locally and globally.



RAZER MOUSE

The world's first-of-its-kind gaming mouse was created by two Singaporean gamers who saw the need for edgier, ergonomic-friendly gaming gizmos. The mouse allowed PC gamers to play more efficiently, and soon flew off the shelves for its intuitive design. Due to its success, CEO Min Liang shipped his business and moved to the US to work on calibrating the gadget to perfection, as well as to amp up its design.



MATCH.COM

A website synonymous with online dating, Match.com was actually created by a Singaporean. Concocted in 1995, Peng Tsin Ong along with Gary Kremen founded Match.com by architecting the system. After its instantaneous success, Ong then ventured into technopreneurship by establishing Interwoven, Inc. (a global leader with a presence on the NASDAQ stock market). He is currently aiding promising tech startups and oversees some of Singapore's future economic plans.



ZOOMING INTO THE WIRED FUTURE

BY LAKSHMI GANESAN



MIND-CONTROLLED BIONIC LIMB

With the advent of Google glasses, wearable tech is not just a thing of fiction anymore but a mere benchmark that will definitely be overwritten by future's technology. As new gadgets continue to be faster and juggle more tasks, we look at some of the products that will be making big waves very soon in the tech world.

MIND-CONTROLLED BIONIC LIMBS

One of possibly the best applications of technology would be its ability to help the handicapped through the use of prosthetic limbs. Scientists are now taking it one step further by developing mind-controlled bionic limbs – all you have to do to work these prosthetics is by picturing it in your mind. Similar arm prototypes have already been made, and recently the first leg prototype was tested out by Zac Vawter. While this mind-controlled prosthetic leg hasn't been released for the public just as yet, we'll be seeing this hit hospital shelves real soon.



SELF DRIVING CARS

CAR INDEPENDENCE

You can save that money that you're intending for your driver's licence because in the near future, we'll all be sitting in self-driving cars. Notable car manufacturers like BMW and Audi have unveiled some interesting prototypes in this year's Consumer Electronics Show. While ideally self-driving cars should do all the driving, at beta stage they don't, because these cars are not able to detect the changing traffic lights or movements outside the car. Hence, there will be moments where the driver will have to be steering the wheel. While the notion of self-driving cars are still in development, it's estimated that they'll be running on the roads in 7 to 10 years' time.

FLYING CARS

Harry Potter's world of flying cars could just be true over the next few years with The Terrafugia Transition, which underwent a test drive in 2013. Currently looking more like a mini-plane than a car, it also needs a runway space of at least 30m. It's also said to be able to be up in air for up to 4 hours, which means travelling to Malaysia could be a breeze. The best part is, it uses conventional fuel, so refuelling at a regular petrol station will be no hassle. The expected release of this car is in 2015 or 2016, so we might just be doing more than just plane spotting in the future.



THE TERRAFUGIA TRANSITION



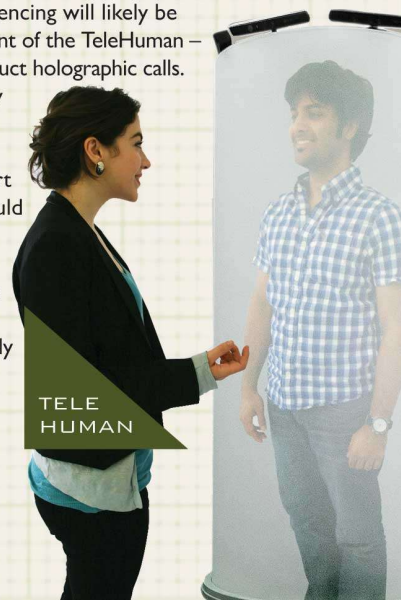
BEND DESK

INTERACTIVE DESKS

How will schools and workplaces be like in the future? With the invention of smartphones, smartwatches and so on, it only makes sense to complete the series with smartdesks. The first prototype, known as BendDesk (created in 2010), involves a desk with a touch-screen computer built into it. The surface of this table is slightly more curvaceous than the run-of-the-mill table and besides the screen, everything thing on the desk is functional.

HOLOGRAPHIC VIDEO CALLS

In a few years' time, video conferencing will likely be revolutionised with the development of the TeleHuman – a system that enables you to conduct holographic calls. The current TeleHuman currently consists of a life-sized pod that resembles a tiny shower curtain. While the mechanics still fall short on certain areas – like callers would have to be 2m apart – the idea that a holographic image of us talking and acting out in real-time currently exists, and while this is still in beta stage, we will definitely be seeing more of holographic calling in a few years time.



TELE HUMAN

JACK OF ALL TRADES OR MASTER OF JUST ONE

Everyone is looking to take a bite out of the tech pie, since these days it plays a key part in every industry across the board - which consecutively paves the way for pursuing a spectrum of IT-related degrees. Which poses the question, is it better to take up a general IT degree or should you specialise instead? Here are some points to consider before deciding on the next step.

GOING GENERAL

VARIETY IS IN THE MIX

For a general IT degree (alternatively known as computer science), the basics of the curriculum are learning about everything that makes a computer tick - from the hardware and software, to the Internet. Starting with an IT degree allows you to gain a broader understanding and explore the different fields existing within the industry before embarking on a career.



OFFERED EVERYWHERE

One of the perks of taking on a general computer science degree is that you can take your pick when it comes to choosing a university. Offered at many institutions, an IT programme does vary from school to school, but the crux of the degree is that it's based on computer theory, and its works.

MAJOR OR MINOR

Unlike specialised degrees, a general IT degree allows the option of majoring or minoring in other fields. So you could explore other academic programs that could help bolster your IT credentials like the courses offered by Kaplan, which pair information technology with a myriad of specializations, from cyber forensics to information security & management.



CAREER OPTIONS

Upon graduating with a general IT degree, students will possess a wide range of highly transferable skills - which gets you a gold star for employability, as most companies would look for fresh graduates with a set of flexible skills, because they'll be more open to trying out different roles within their job scope.

ABUNDANCE OF TIME

Most general IT degrees take 3 to 4 years to complete, which means that students will have plenty of time to hone their computer skills, while mastering computer theory. Along with that, they'll also be able to take on summer internships and projects outside of university which will only build their portfolio further.



GOING SPECIALISED

PREPPING FOR THE FUTURE

Taking a specialised degree like Game Design from DigiPen preps you precisely for the career that you've set your sights on. And by the time you complete your studies, you'll be extremely well versed in all the key facets of your chosen field. With such specialised degrees, you'll also be in tune with the current industry and technology trends, which will definitely ease your entry into the industry as well as speed up your career progression.



APPLICATION-BASED

While you will still get a strong theoretical foundation, specialised degrees tend to put their emphasis on more practical, application-based learning - compared to a general IT degree. Through projects and hands-on doing, specialised degrees let students build their actual portfolio while studying.

BETTER PAY

With specialisation often comes better pay straight way, as you'll be prepared to enter the industry as soon as you graduate. Companies that are looking to fill a specific job scope tend to look to those that are qualified with specialised degrees, as they'll be schooled with the right skill set.



IN DEMAND

Especially in the tech field, specialised staff always tend to be in demand because of the intricacies involved. Roles like cloud architects (which deal with cloud computing), or mobile app developers are always available, mainly because of the lack of such specialised staff, compounded by the fast-expanding nature of those fields.



DOING WHAT YOU LOVE

If you're specialising in a particular area of tech, it's more than likely you have a whole lot of interest and passion for that particular field, which matters because doing what you love for work means you'll never 'work' a day in your life.



HOT JOBS IN THE TECH INDUSTRY

With the tech industry growing at such a rapid pace, jobs are constantly getting revamped to meet the new demands. Here are a few options (many of which don't require IT degrees) if you want to break into the industry.

NON-TECH

SEO COPYWRITER

A search engine optimisation (SEO) copywriter's task is to create and populate a company's website (and social media sources) with contents that will build hit rates and increase web-search traffic. When you Google something for instance, SEO copywriters help insure their website appear in the top results. Hence, their job includes being a wordsmith as well as understanding patterns and trends with popular keywords – weaving them into their website in engaging ways that also help push up their site's ranking, not to mention generating 'likes' and 'shares' in social media.

EARNING POWER: \$36,748

COMMUNITY MANAGER

The liaison between a company and the public, the community manager is the one who understands your target audience's needs and wants and caters to them, tailoring the company's image accordingly. They do this through monitoring what the current brand image is on the web (and especially social media), and developing strategies to harness what customers are saying (and thinking), through feedback – building their brand's image. If you've got good people skills and a knack for identifying great social media content, you may have the makings of a great community manager.

EARNING POWER: \$73,158

TECH

MOBILE APP DEVELOPER

Are you constantly thinking how to get more out of your mobile? Do you get into heated arguments about Apple vs Android? Do you naturally evaluate new devices based on their tech specs ("who needs a curved screen anyway?")? Then diving into the mobile apps could just be your thing. Slightly more autonomous than the rest of the industry, mobile app developers could work for established companies or be their own boss. Involved with concept, design – basically the whole works, mobile app developers are especially sought after by many companies looking to condense their broader services into a compact, user-friendly app.

EARNING POWER: \$42,800

USER INTERFACE DESIGNER

These days design and tech merge in many ways, with interface design being a prime example of where the two distinct fields come together – whether it's purely hardware or behind the scenes making software more user-friendly. With design and tech being two sides of the same coin, it's easy to see how interface designers are in demand, from developing concepts for mobile, to web or B-2-C software. Interface experts decide where buttons go, and how layouts look, making things easier to use and therefore more popular and profitable.

EARNING POWER: \$111,075

CLOUD ARCHITECTS

The latest trend in the tech industry: cloud computing, which has paved the way for an all-new designation: cloud architect. This job varies depending on the company, from streamline cloud computing services for clients to creating new interfaces, or even being high-end tech support - there's plenty of avenues to explore in this emerging field. If you're a really meticulous person with a head for solving problems (something you'll need to connect all the dots in an entirely new area of data management), this may just be for you.

EARNING POWER: \$127,000

WEB ARCHITECT

In today's internet age, having a website is the equivalent of having a name card, which is why most companies are constantly in need of a dedicated specialist to manage their precious web presence: enter the web architect. From fixing bugs on sites, to monitoring and analysing website traffic, updating the site with the latest functions or re-modifying it to meet a client's evolving needs, the job covers many areas. So if you're interested in the "how" behind great websites and love to keep up-to-date with the latest programming and software, this role is right up your alley.

EARNING POWER: \$31,596

How Tech Are You?

Take this quiz to see what tech path you're most inclined to. Just don't use this as a basis for your actual education move.



HARDWARE

Combine your love of gadgets and tech with engineering know-how, whether its developing power stations, robotics or space satellites.

SOFTWARE

You love understanding and creating the inner workings of high tech stuff – think defence technology, complex financial software and even A.I.

GREEN

With green tech, there's big growth in rolls like environmental engineers and geoscience (devising alternative energy solutions in the field).

BIO

Bring your love of tech together with an interest in biology, and you've got nanobots, developing disease cures, stem cell research and more.

APPS

You're probably cut out to develop mass-market, consumer-friendly technology like mobile apps, gaming etc., as a software or web developer.

COMMS

You're the face between the technology and users. Some of the highest-paid jobs in tech, the scope varies from media to gaming and CG.

NEXT GENERATION OF ENGINEERS & TECHNOLOGISTS



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