IEEE

Inside this issue:

Report from the Chair

Create, Develop, Contribute

Driving home recently, I found myself caught up in the regular evening traffic chaos on one of Melbourne's arterial roads. Looking up, I saw that a Public Transport bus had moved alongside me and was similarly ensnared in the same inevitable inaction. Nothing moved - forwards, backwards or sideways - for minutes at a time. And the PT vehicle was still several hundred metres short of its next bus stop! Meanwhile, the northbound lanes opposite had only light traffic and the occasional platoons of vehicles were all moving at a respectable speed.

I thought, "What sort of engineers are we, really, if we can't solve a simple problem of dynamic resource allocation like this? Surely there are many practical ways of keeping a bus MOVING in such situations!"

The "bells and whistles" approach used by emergency vehicles might be considered a bit "over the top" and presumably a more citizen-friendly method of traffic control is required.

 The conventional approach would be to use roadside, overhead, or in-pavement signal lanterns. We need something roughly akin to the tidal-flow traffic lanes currently in use in various parts of the city, but very much more flexible, responsive and "intelligent". And no doubt, in the not too distant future, the fixed infrastructure could be augmented by direct-in-vehicle warning signals.

Now, if the bus could wirelessly contact the traffic control system to "requisition" a wrong-way traffic lane, and then travel along it at an average speed of, say, 35 km/h, it would cover the 500m distance between bus stops in less than 1 min., and the opposite-direction traffic would be disrupted for about this time. Surely, this is not an excessive penalty to inflict on a few dozen motorists, several times during the peak hour? At least, we might expect the bus passengers to be strongly in favour of such a system!

Of course, the brief outline given above is a long way short of a complete engineering solution and no doubt considerable developmental effort would be required to bring such a system into operation.

Chair's Report cont.

Nevertheless, we are hoping that many of our members will be interested in thinking their own way through simple practical problems like this one.

To this end, we plan to set up a selected number of **Special Interest Groups** wherein members having compatible professional interests can meet and work together, either in small teams or individually, on selected **real-world problems.** Alternatively, the group may elect to work on **technology-driven opportunities** having perceived social, community, aesthetic or economic benefits. The extent and depth of such enterprise obviously will depend on the level of resources that can be made available, which in turn may depend on external Sponsorship support for at least some of the projects undertaken.

But nothing attempted, nothing achieved! We now need to demonstrate (to ourselves and to others) that we have the motivation and the ability to move constructively in this new area of Victorian Section activity.

If you are an IEEE member of any Grade and you feel a strong urge **to Create, to Develop**, **to Contribute**, within the foregoing general parameters, we will be very pleased to hear from you. You may want to know more about the specific fields of interest we already have in mind. Or you may wish to present your own proposal for a new SIG venture. In either case, please contact me in the first instance at the email address below. Or else contact Section Vice-Chair, Dr Alan Harvey, at acupak00@hotmail.com.au.

Please step forward if you are interested, we really need your involvement - on whatever time-allocation or other basis of participation you may care to nominate!

Tony Gascoigne
Chair, IEEE Victorian Section
aeg@gnsassoc.com.au

Victorian Section News

The members of the Victorian Section of the IEEE wish to offer their congratulations to **Golnar Khomami**, whose PhD has recently passed at the School of Engineering and Mathematical Sciences, La Trobe University.

The title of Golnar's thesis is *Real-time estimation of neighbouring node density in chaotic VANET environments.*

The IEEE is very proud of its student and GSM volunteers and if you know of people that have completed their PhD or have had other significant events in their lives, then please let us know so that we can congratulate them too.

This edition of Uplink focuses on the outstanding work by the IEEE Women in Engineering team and volunteers in preparing and presenting the **Special Wearable Technology Project**

The IEEE Women in Engineering (WIE) Affinity Group Presents the Special Wearable Technology Project

Introduction

MEHRNAZ SHOUSHTARIAN

First WIE wearable workshop held at the University of Melbourne in November 2014.

The IEEE Victorian Women in Engineering Affinity Group (WIE), began working on a Wearable Technology project in 2014 when Enn Vinnal, the Section Treasurer, brought the LilyPad Arduino to their attention.

The idea of combining coding and sewing seemed to have endless possibilities. The project eventually unfolded into a series of workshops on e-textiles and wearable electronics in which the LilyPad Arduino, a sewable microcontroller, was used to provide technical training in a creative environment.

Their first workshop was held in November 2014 with a total of 13 workshops and an E-Sewing Hackathon held in 2015.

The workshops attracted a wide audience including programmers, fashion designers and high school students. The E-Sewing Hackathon held in July was an exciting full day event which saw some intense sewing and programming by attendees who aimed to come up with a working wearable tech design!

To round up this exciting project in 2015, WIE organised an Energised Fashion Runway during National Science Week. This event was held at Storey Hall, RMIT University on the 22nd August 2015. In addition to designs from the workshops, other work showcased at the runway were selected through a call to the general public for submissions and through collaborations with universities and schools on different designs.

Initial funding for this project was obtained through a Region 10 grant in 2014. The IEEE Victorian Section funded the remainder of the project with the Energised Fashion Runway being funded by a competitive National Science Week grant.

WIE Special Wearable Technology Project

About the Lilypad Arduino
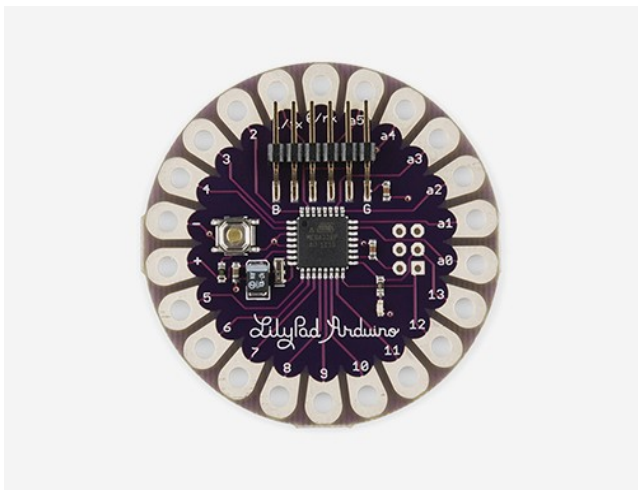
The LilyPad Arduino is a microcontroller board designed for wearables and e-textiles and can be programmed using Arduino software.
The wearable microcontroller can be sewn

Making LilyPad enabled Ugg boots

to fabric along with mounted power supplies, sensors and actuators by using conductive thread.

These can include light sensors, temperature sensors, accelerometers, buzzers, vibrating components, LEDs and switches. Once programmed, it will react to information about its environment and respond.

Phyllis Hewitt using the LilyPad Arduino kit to create her blue-tooth T-shirt

LilyPad was designed by Leah Buechley. The commercial version of the kit was collaboratively designed by Leah and Spark-Fun Electronics. The LilyPad Arduino main board is based on the ATmega168V or the ATmega328V. Its operating voltage range is 2.7-5.5V, its input voltage is 2.7-5.5 V , it has 14 input pins , 6 PWM channels, 6 analogue input channels, pull 40mA DC current per I/O pin, have 16KB of flash memory (2KB used by bootloader) 1 KB of SRAM, 512 bytes of EEPROM and a clock speed of 8 MHz.
For further information, see the following web sites.
lilypadarduino.org) and
https://www.arduino.cc/en/Main/ArduinoBoardLilyPad

WIE Special Wearable Technology Project

Workshops on Lilypad Arduino Wearable Technology held at RMIT University and Monash University

EE HUI LIM

The WIE team has conducted multiple workshops at RMIT and Monash University.

With the help from the student representatives, the team has also conducted workshops at Melbourne University (lead by Eman Alatawi), UTas Launceston (lead by Mehrnaz Shoushtarian/Annick Boghossian/Amanda Lunt), Deakin University Waurn Ponds (lead by Annick Boghossian), Academy of Design Australia (lead by Mehrnaz Shoushtarian) and Enginuity Outreach Program at Monash (lead by Nalika Dona).

As of 23 November 2015, we have conducted 15 workshops, with the first one in November 2014 at RMIT University.

22nd November 2014: First Lilypad Arduino Beginners Workshop at RMIT University

31st January 2015: Lilypad Arduino Beginners Workshop at RMIT University had 11 registrations and 7 participants in the workshop.

28th February 2015: Lilypad Arduino Beginners Workshop at RMIT University

Participants in the workshops expressed interest in attending the advanced workshops to build on their experience.

28th March 2015: Lilypad Arduino Beginners Workshop at Monash University

There was a lot of interest expressed by participants around Monash to attend this workshop.

There were 11 registered participants and 9 of them turned up to the workshop.

In addition, there were 12 people ion the waiting list for the next workshop at Monash.

9th **April 2015**: Lilypad Arduino Beginners Workshop at Monash University

The Lilypad Arduino Workshop for beginners at Monash to cater for those on the waiting list.

18th April 2015: First Advanced Lilypad Arduino workshop at RMIT University

The first advanced Lilypad Arduino workshop held at RMIT University.

23rd May 2015: Combined Beginners and Advanced Lilypad Arduino workshop at RMIT University

A merged beginners and advanced Lilypad Arduino workshop at RMIT University with 8 participants.

After the very successful Energised Fashion Runway, 3 more workshops have been held.

8th October to 5th November: A series of 5 classes to Preshill High School students on wearable projects

21st October 2015: ThoughtLAB-14: Back to the Future Panel Discussion – Collaboration with the Carlton Connect group on wearable technology exhibition and discussion

23rd November 2015: Wearable Technology workshop at the Australian Biomedical Engineering Conference, Melbourne University.

WIE Special Wearable Technology Project

FROM PAGE 5

Workshops on LilyPad Arduino Wearable Technology held at UTas Launceston and Deakin University Waurn Ponds

30th May 2015: UTas Launceston campus Beginners Lilypad Arduino workshop

10 participants attended the first workshops at the UTas Launceston campus.

Participants at the Lilypad Arduino workshop held at the UTas Launceston campus

Watching an inspirational video at the UTas workshop

10th June 2015: Beginners Lilypad Arduino workshop at Deakin University Waurn Pond campus

Participants enjoying the Lilypad Arduino Workshop held at the Deakin University Waurn Ponds campus

Sewing and coding at the Deakin workshop

WIE Special Wearable Technology Project

Workshops on LilyPad Arduino Wearable Technology held at Melbourne University

20th June 2015: Beginners and Advanced Lilypad Arduino workshop at Melbourne University

Annick sharing learning experiences with participants as she explains the microcontroller

Mehrnaz conducting the workshop

Participants working with the microcontroller

Participants doing some e-sewing

WIE Special Wearable Technology Project

ENGenuity Program on Lily-Pad Arduino Wearable Technology held at Monash University and Swinburne Workshop

30th June 2015: Monash ENGenuity Program

Mehrnaz demonstrating the safety vest application to high school students

Surface Pro with Lilypad Development Board set up by Nalika

22nd July 2015: Beginners and Advanced Lilypad Arduino workshop at Swinburne University

WIE Student Affinity Group at Latrobe and Melbourne University Sessions on Lily-Pad Arduino Technology

There were sessions conducted in the WIE student affinity groups at Latrobe University and Melbourne University. Ee Hui visited the affinity groups to introduce the wearables project to the students

Students from IEEE Latrobe Student Branch promoting the IEEE WIE National Science Week Energised Fashion Challenge with posters and a sample wrist wearable design

Melbourne University WIE Student Affinity Group Networking Session .

WIE Special Wearable Technology Project

Workshops on LilyPad Arduino Wearable Technology held at the Academy of Design Australia

9th August 2015 Open Day Wearables Workshop at the Academy of Design Australia

The WIE team was invited by the Academy of Design Australia (AoDA) to conduct a wearable technology workshop as a curriculum of the fashion school and graphic design school.

There was a great response from the students and staff, who requested further LilyPad Arduino workshops.

Using the LilyPad

Students at AoDA planning their designs

Annick demonstrating a safety vest application

WIE Special Wearable Technology Project

E-Sewing/Wearable Technology Hackathon

ANNICK BOGHOSSIAN

The first E-sewing/Wearable Technology Hackathon took place on Saturday **27th June 2015**. The full day event attracted much interest amongst programmers, fashion designers and high school students.

Participants are welcomed to the Hackathon

The event was held as a joint event by the IEEE Victorian WIE Affinity Group and the Computer Society Chapter of IEEE Victorian Section. Funding for the event was kindly provided by the IEEE WIE R10 support fund and the Computer Society of IEEE Victorian Section.

Participants were invited to develop designs for wearable technologies and present their projects at the end of the event.

During the Hackathon, participants were introduced to the Arduino LilyPad microcontroller and a set of sewable electronic sensors/actuators which can be used together to create interactive garments and accessories.

In an intensive 8 hours, participants learned new tools, met industry experts, collaborated with other talented students and young professionals, and built new wearable and connected technologies.

The projects were awarded at the end of the event with certificates and some of the designs were automatically fast tracked to the Wearable Electronics Fashion Runway during the National Science Week in August.

Thinking and Planning at the Hackathon

Following the general introduction and a motivational video on how the electronics can be used, the participants were shown sample projects which consisted of the 'Persistence of Vision Boots', 'Soft Fabric Piano', 'Safety Cyclist Vest', and a 'Conductive-Yarn Shirt'.

The participants focused on their own projects in collaboration with other students.

WIE Special Wearable Technology Project

E-Sewing/Wearable Technology Hackathon

The four industry experts, Mehrnaz Shoushtarian (Bioengineering), Ee Hui Lim (Electrical Engineering), Annick Boghossian (Computer Engineering), and Akiko Ho (Fashion Designer) were available throughout the event to assist the participants with their designs. The programs were tested and the components sewn (using conductive thread and needles) onto fabric or garments which had been brought along.

Our youngest participant was only 13 years old and her capability to understand the program and apply rapid changes to the code were astonishing.

DESIGNS AND DESIGNERS
The inspirational designs were received with enthusiasm at the end of the day and the proud developers presented them to the applause of their fellow participants.

Betsy Lam—Fashionable Hat

The controller in this design controls LEDs, which are sewn in circles around the hat.

The hat will provide safety and visibility at night for the wearer in addition to looking fashionable.

Gabriel Dalfre—Iron Man Arc

In Gabriel 's design, the LilyPad Aduino controls LEDs arranged like the characteristic Iron Man Repulsor Tech Node, which is Iron Man's source of clean energy.

Fiona Gonsalvez & Stuart So–Tapping Dress

Their clever dress will illuminate when the wearer is tapping on it.
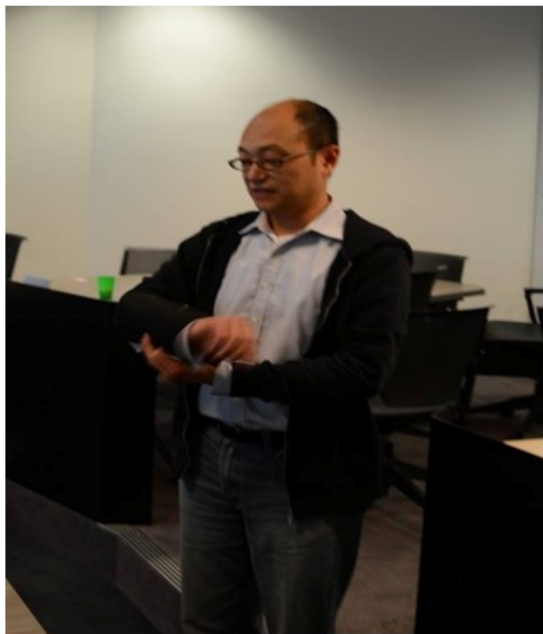
WIE Special Wearable Technology Project

FROM PAGE 11

E-Sewing/Wearable Technology Hackathon

David Ng—Interactive Wrist Watch

This smart wrist watch displays the time when your hand is elevated. The design utilizes the accelerometer which measures its position in real-time. As an additional functionality, the designer is planning on integrating a breath analyzer, which measures the alcohol content in a person's breath.

Jialin Miao—Safe Mug

Jialin was our youngest participant. Her design utilises the temperature sensor which would be integrated in a mug to indicate the temperature of the beverage to prevent any surprises such as scalding hot liquid or a drink gone cold and tasting unpleasant.

Harmony Yu—RGB LED Strip

The LED strip can be programmed to address each LED individually by changing color and frequency for maximum impact.

The component was later integrated in a fashionable handbag and controlled using the inputs of an accelerometer.
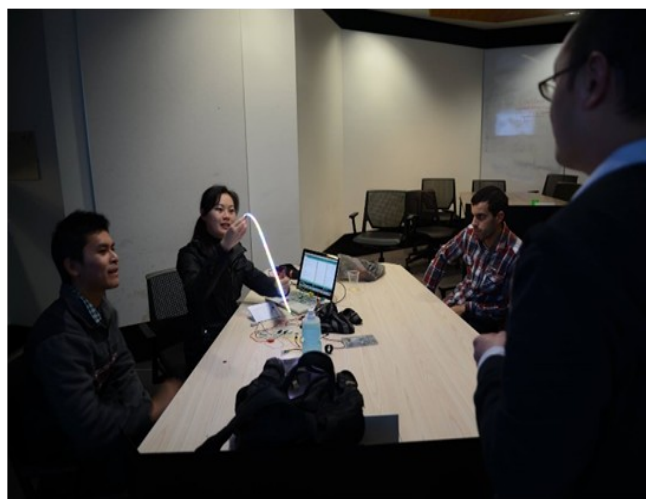
Harmony demonstrates the LED strip

WIE Special Wearable Technology Project

E-Sewing/Wearable Technology Hackathon

Phyllis Hewitt—Bluetooth T-Shirt

The T-shirt integrates Bluetooth technology to light LED's when receiving a signal from another device.

Udesh preparing the light LED matrix

Udesh Egodage—Light LED Matrix.

The controlled LED Matrix changes according to the light intensity by utilizing the LilyPad Light Sensor.
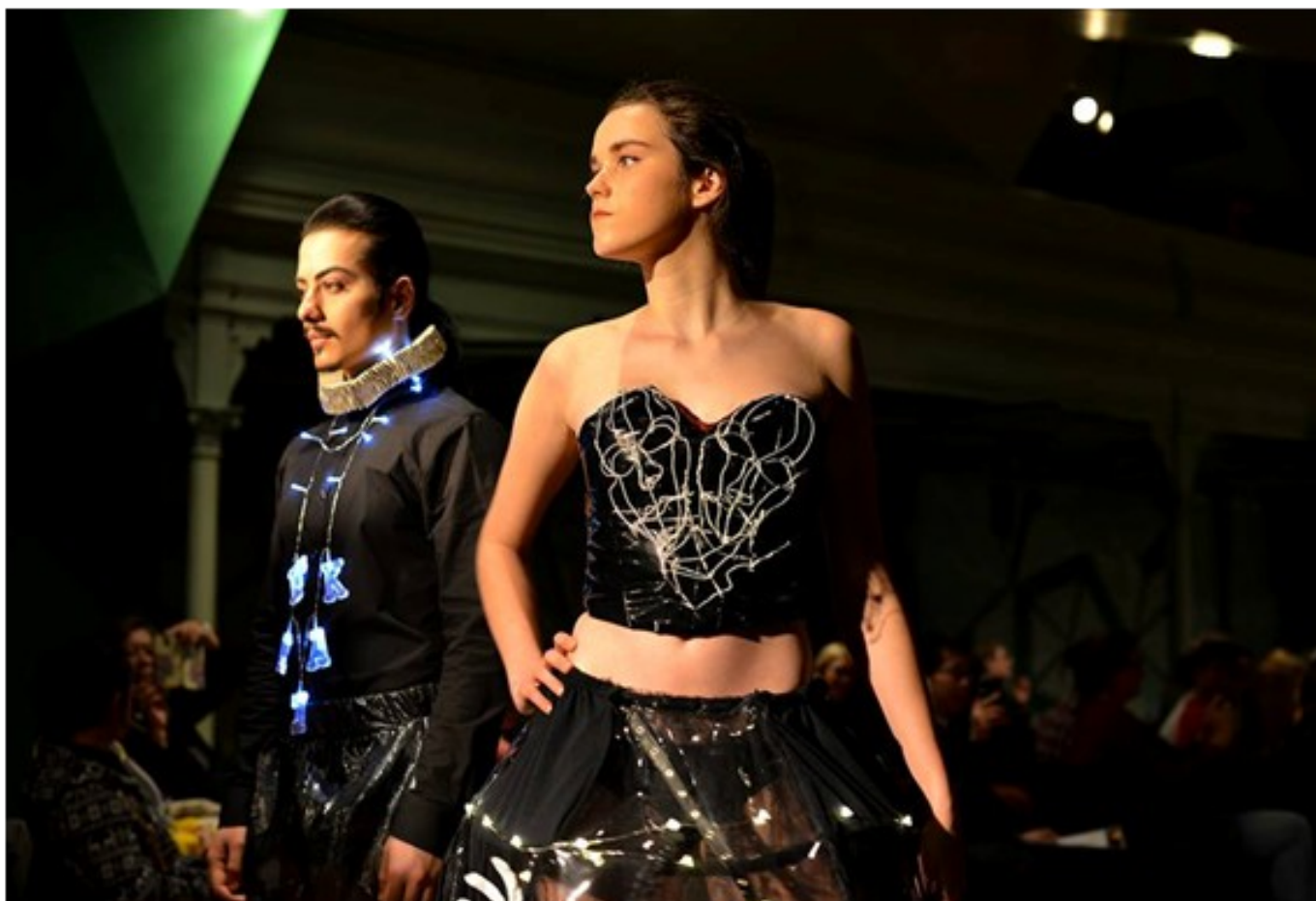
WIE Special Wearable Technology Project

WIE Awarded a National Science Week Grant to Run the Wearable Technology Energised Fashion Runway

EE HUI LIM

The WIE group was awarded a National Science Week grant to run a fashion runway – Energised Fashion, featuring wearable electronics and e-textiles on **22 August 2015** at RMIT University's Storey Hall in Melbourne.

A National Science Week Energised Fashion Committee, (Ee Hui Lim, Mehrnaz Shoushtarian, Annick Boghossian, Nalika Dona, Akiko Ho, Harmony Yu, Ruwini Edirisinghe, Marcela Vercino, Enn Vinnal, Alan Harvey) worked together with a number of student representatives and volunteers who were involved with the event preparation. These were Emran Amin, Bhashi Athauda Amarasekarai, Fiona Gonsalvez, Epsy Edward, Bonnie Vong, Amanda Lunt and Eloise Macdonald.

The event would not have been possible without the passion and dedication of the committee and volunteers, who spent a vast amount of time and effort on the event organisation.

The Academy of Design Australia (AoDA) generously provided assistance to direct the runway and to manage the call out for runway model volunteers.

The collaboration with the AoDA has delivered a number of creative designs from the school, including the winning design at

WIE Special Wearable Technology Project

The Wearable Technology Energised Fashion Runway

the Energised Fashion Challenge.

WIE was also appreciative of all the work by the volunteer models: Hannah Hale, Madeleine Remont, Wallapa Lalitanun, Yalda Ghaffary, Georgina Tippett, Kathleen Wesley, Kelsey Allen, Adriano Weise, Omar Nuristani, Jack Fordham and Isaac Oliver.

Many thanks are due to Annie Cabral and Neil Chenery for AoDA for their wonderful contribution to the project.

Our event photographer Shaun Paine and videographer Jess Junor, generously gave their time on the day.

Annie assisting Ee Hui with some last minute sew-

Annick sorting out the wearables for the models

Annie, Mehrnaz and David discussing the runway program

Clark checking the coding for his light up tie (see page 24)

WIE Special Wearable Technology Project

The Wearable Technology Energised Fashion Runway

FROM PAGE 15

Ee Hui welcoming everyone to the Energised Fashion event

A number of high schools including Preshill, Toorak College and Mooroolbark College have invited the WIE team to present the topic of wearable technology to the schools and assist in incorporating it into their curriculum.

Akiko helping with the make-up for a model


Mehrnaz coordinating the runway operation

WIE Special Wearable Technology Project

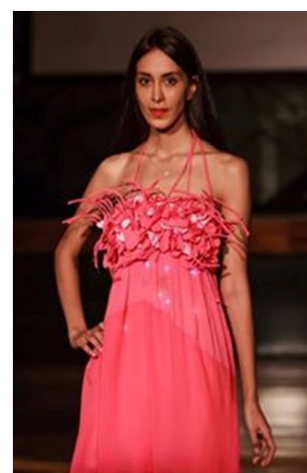## The Wearable Technology Energised Fashion Runway

MP Steph Ryan presenting the keynote speech

The event's keynote speaker was MP Steph Ryan, Victorian Shadow Minister for Training, Skills & Apprenticeships ,who provided an excellent introduction to the history of Australian women in engineering. She noted that the first female electrical engineer in Australia, Florence McKenzie, graduated less than one hundred years ago.
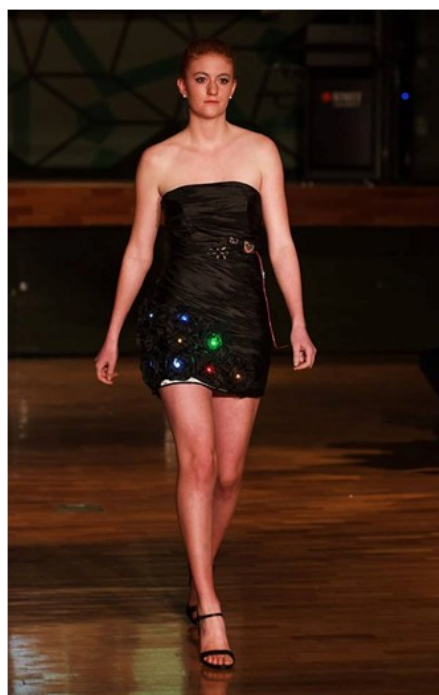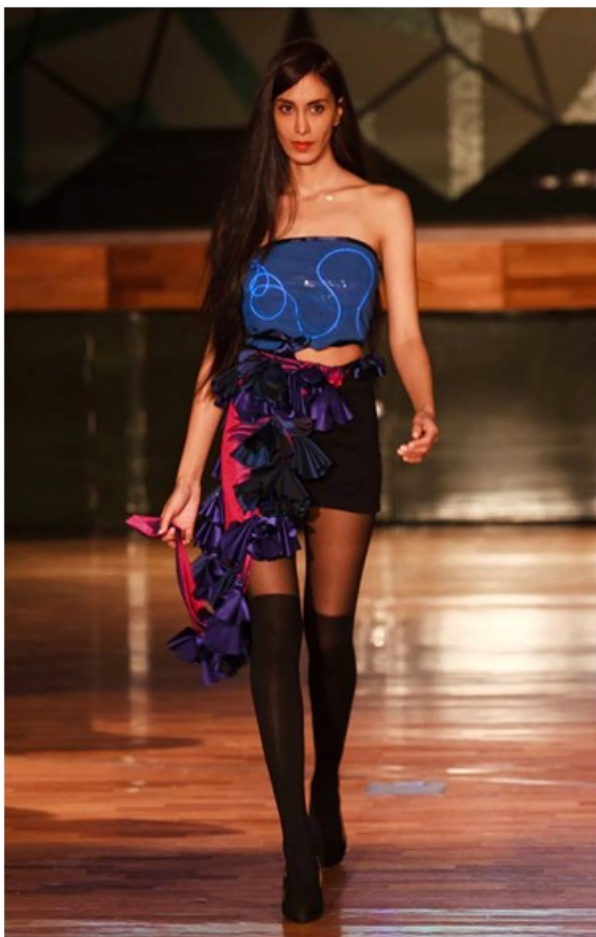

Annick opening the runway session

WIE Special Wearable Technology Project

The Wearable Technology Energised Fashion Runway

Deep Sea Creatures Dress by Georgia Zarewicz

The elaborate ruffles on this costume represent coral reef formations and the bright colours of iridescent sea life.

Deep Sea Creatures Dress by Thursday Hang

Inspired by jellyfish and other creatures of the deep, this costume features electroluminescent wire and portable video screens

WIE Special Wearable Technology Project

The Wearable Technology Energised Fashion Runway

Communicate With Me Cardigan by Sarah Boghossian and Annick Boghossian

This cardigan integrates Bluetooth technology to communicate with mobile phones and tablets. With any incoming message the wearer is notified with the blinking of LEDs.

Let It Rain Dress by Annick Boghossian

The integrated humidity and temperature sensor measures the humidity in the air and ambient temperature and simulates rain.

WIE Special Wearable Technology Project

The Wearable Technology Energised Fashion Runway

Light Me Up Dress by Annick Boghossion

The dress utilises a sensor to measure the light intensity and light up accordingly.

Straight and Stretch Shirt by Annick Boghossian

This shirt integrates conductive fabric measuring the muscle movements and posture and notifies the wearer to stretch to prevent muscle tension.

Energised Human Body by Dannie Wei and her students at Sunshine College

A range of human body system artworks and electronics are integrated on recycled T-shirts

WIE Special Wearable Technology Project

The Wearable Technology Energised Fashion Runway

Dragonflies with Flapping Wings by Gail and Mathew Joordens

Dragonflies flap their wings with different colour LEDs.

Deep Sea Creatures by Sarah Volkov

This costume inspired by the self-illuminating creatures of the deep who light up and lure their prey. Virtually blind these creatures are particularly sensitive to movement and heat.

WIE Special Wearable Technology Project

The Wearable Technology Energised Fashion Runway

Dance with Me by Annick Boghossian

A microphone is attached to this design, controlling the flickering and dancing of lights with the rhythm of the music.

Heartbeat by Fiona Esther Gonsalvez

A light sensitive dress that responds to the heartbeat of the wearer.

WIE Special Wearable Technology Project

The Wearable Technology Energised Fashion Runway

You See My Heart Beat by Ruwini Edirisinghe

A night party dress with a pulse sensor and LED lights to indicate the heart-beat.

Love-O-Meter Dress by Ee Hui Lim

A temperature sensitive dress perfect for a date night (or not?)

WIE Special Wearable Technology Project

The Wearable Technology Energised Fashion Runway

One Tie Fits Them All by Clark Huang

The ultimate colour-changing tie for work and party after work. The tie responds to gravity and acceleration and will prompt wearer to get moving every hour at work and will respond to dance moves during the after work party.

Musical Dress and Light Up Glove by Mehrnaz Shoushtarian

By touching the treble clef, the LEDs on this dress will light up to the beat of the tune played, while tapping the fingers will light up the LEDs on the glove.

WIE Special Wearable Technology Project

The Wearable Technology Energised Fashion Runway

Guiding Stars by Ee Hui Lim

Let It Rain Dress by Akiko Ho

The integrated humidity and temperature sensor measures the humidity in the air and ambient temperature and simulates rain.

With the concept of conventional star navigation, the sewn-on Orion star sign will twinkle brightly when the wearer is heading towards the right direction when travelling at night.

WIE Special Wearable Technology Project

The Wearable Technology Energised Fashion Runway

### Smart, Wearable Kit for Construction Safety by Ruwini Edirisinghe

The kit monitors the body temperature, visualises the data and generate alerts in real-time. It includes a safety vest, a mobile app and smart glasses.

Interactive Glove by Nalika Dona

This glove visualises a pattern using perception of vision which is the illusion that an image continues to persist. By taking the advantage of delay in brain-eye processing time, viewers will see a pattern when the glove is waved.
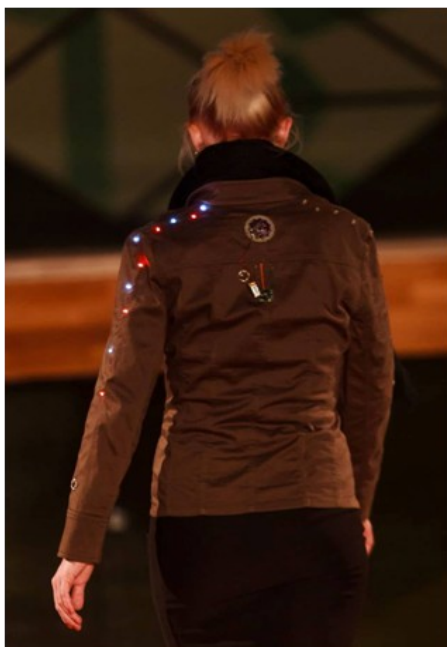
Ultimate Cyclist Jacket by Ee Hui Lim

A cyclist jacket that lights up left or right sleeves when changing direction and vibrates when detecting a close object (other vehicle)

WIE Special Wearable Technology Project

The Wearable Technology Energised Fashion Runway

Smart Wrist Watch by David Ng

A wearable Arduino wrist watch attached to the arm as an accessory where the watch's LED display is switched on when the user raises their arm to read the time. An alcohol sensor is integrated to the wrist watch.

Deep Sea Diver by Rhyanna Martinussen

The deep sea diver symbolises a human presence in an alien space. He represents us as observers of the amazing life forms that dwell in the sea.
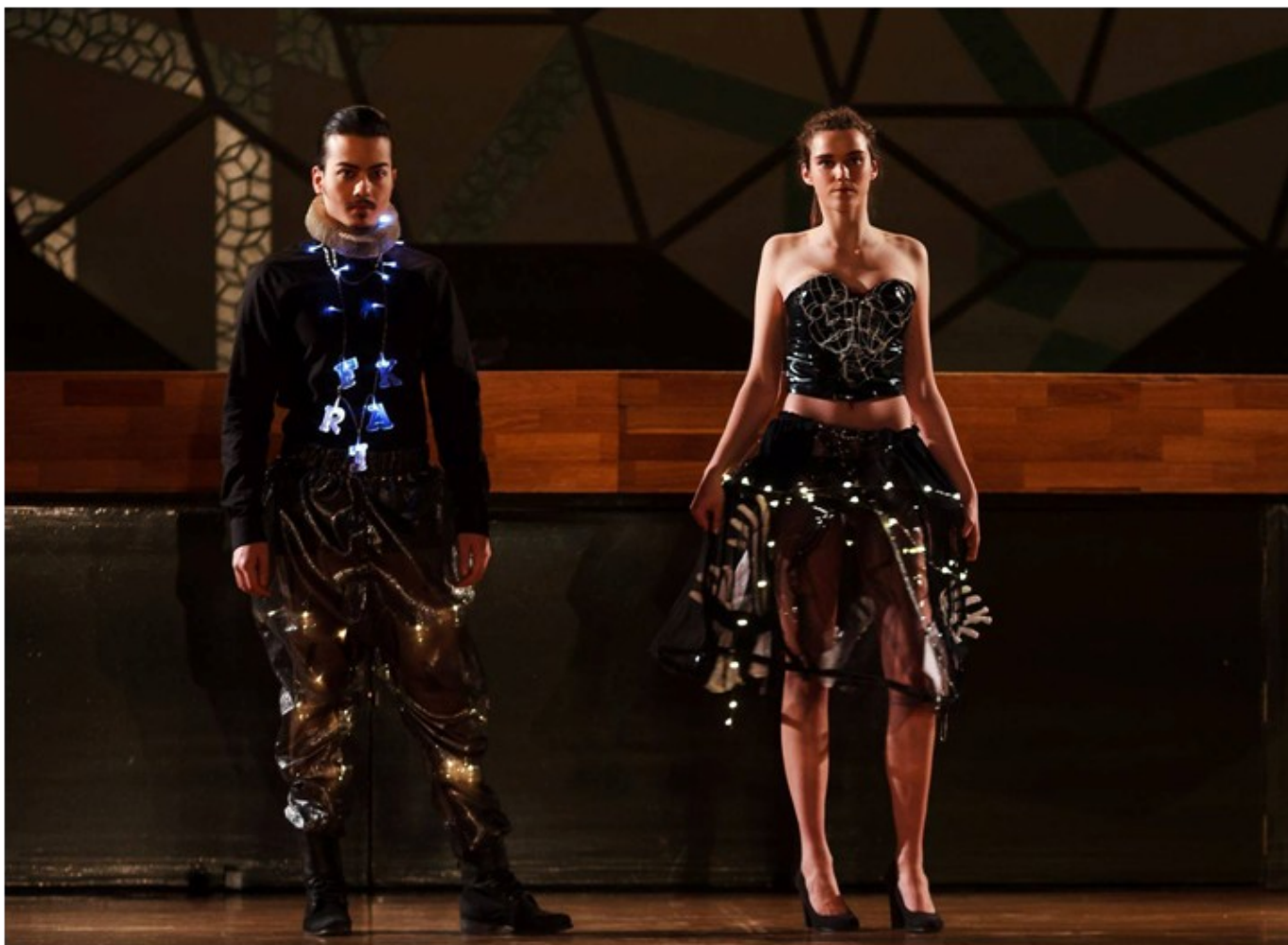
Heart Boots by Ee Hui Lim

Using the concept of POV, the boots display a heart pattern when walking

WIE Special Wearable Technology Project

The Wearable Technology Energised Fashion Runway

The Winning Designs

FIRST PLACE

DARK CIRCUS by MIE MIE LEE & THURSDAY HANG

Male: The sideshow circus performer is personified in this illuminated costume. An outsider in the limelight.

Female: She wears a cage of hands illuminated with twinkling party lights. She is a performer and a circus attraction from the dark side.

WIE Special Wearable Technology Project

The Wearable Technology Energised Fashion Runway

SECOND PLACE

MOTION SENSITIVE DRESS by NALIKA DONA

This dress lights up according to body rotation/movement in a certain direction. It uses an accelerometer and gyroscope to identify body rotation.

WIE Special Wearable Technology Project

The Wearable Technology Energised Fashion Runway

THIRD PLACE

RAINBOW HANDBAG by HOMGMEI YU, TOM UNG and KSHITIZ BHUJEL

With a swing of the handbag, the straps will display a spectrum of rainbow patterns.

WIE Special Wearable Technology Project

Fashion Hands-On Lab at the Wearable Technology Energised Fashion Runway

There was a fashion Hands-On Lab at the runway venue, which demonstrated a number of selected designs and provided an opportunity for the general public to experience the technology and motivate them to use it in the future.

Volunteers explained the technology to the public and allowed interested users to modify programs and observe the changes in the wearable circuits.

Bhashi demonstrating Lilypad Development Board to a couple of young students

Runway Preparation—
Bhashi and Ruwini setting up the Hands-On
Lab

WIE Special Wearable Technology Project

The Wearable Technology Energised Fashion Runway

The Energised Fashion Committee

The WIE Committee

IEEE Women in Engineering International Leadership Conference 2015

MEHRNAZ SHOUSHTARIAN

Three WIE members from Victoria, Mehrnaz Shoushtarian (WIE Victoria), Fatemeh Jalali and Sareh Fotouhi (both from Melbourne University WIE) attended the IEEE Women in Engineering International Leadership Conference (WIE-ILC) held in April 2015 in San Jose California.

The focus of the conference was to provide leading-edge professional development and give attendees the opportunity to fuel innovation, facilitate knowledge sharing and provide support through interactive sessions designed to foster discussion and collaboration.

This was the second WIE-ILC with the first held in San Francisco in 2014. This year the conference had grown to twice the size, with more than 700 attendees and 20 exhibiting companies.

The speakers included a number of highly successful females in the tech industry including AMD CEO Lisa Su, Xerox CTO Sophie Vandebroek, and Cisco CIO Rebecca Jacoby.

The conference sessions consisted of four main tracks: innovation, empowerment, entrepreneurship and leadership.

There were both personal and professional stories told by the speakers. Some described their career paths, encouraged women to take risks, and talked about the importance of diversity to innovation.

Others talked about the required skills, such as communication, for a successful career.

There were also panel discussions on topics such as leadership where the audience were encouraged to take part.

One of the most inspiring speakers was Barbara Beskind who described herself as an innovator and conceptual designer. At 92, she is curious about how current technology can be applied to everyday problems and is actively involved with client projects on health care delivery, retirement home services, contact lenses and dynamic design of glasses. Due to her moderate vision loss, she directs her focus on products and services that address these problems.

An app had been developed for the conference with an interesting and useful feature which allowed attendees to upload questions and vote for other people's questions during keynote sessions. The session chair would then ask the speaker the questions with the most votes.

Some of the larger attending companies showed their support by bringing in large contingents of women from distant offices and encouraged them to meet their co-workers.

Intel employees had been given scarves printed with an abstract circuit pattern which they wore around their neck, making it easy for them to spot fellow workers.

Overall the organisers had done an amazing job putting together this three day event. The conference chair, Nita Patel, had capably led an organising committee of 11, some of whom were from outside USA, throughout the planning process. Through sponsorships by over 30

IEEE Women in Engineering International Leadership Conference 2015

companies, a large number of travel grants were awarded, including 22 international travel grants, as well as local ones to high school students, undergraduate students, graduate students and professionals.

All grant recipients were asked to volunteer during the conference and were provided online training before the conference and on-site training upon arrival.

Although this somewhat limited the sessions that these volunteers could attend, it was great experience for them and ensured the sessions were run with very few issues. A local event similar to WIE-ILC, perhaps on a smaller scale, would

certainly benefit WIE members and other female engineers.

While the target audience of WIE-ILC appeared to be those in the IT field, a local conference could aim to have engineers and speakers from a wider background.

To organise such an event, WIE Victoria could ask for mentoring by the WIE-ILC organisers who have now successfully run two such conferences.

Some of the highlights of their work, including timely planning, attracting volunteers and a large number of sponsors would be areas we could learn from.

For further details about the conference and speakers go to http://ieee-wie-ilc.org/

WIE-ILC 2015 conference travel grant recipients. Fatemeh Jalali and Mehrnaz Shoushtarian from Victoria were among recipients

Editorial

Without doubt, the most significant IEEE event for many years was *The Energized Fashion Runway* event, which ran on Saturday the 22 of August in Story Hall at RMIT city campus.

Several hundred people saw fashion models displaying the e-textile products produced over the last 12 months or more.

Congratulations to Ee Hui and her team for running an extremely significant event so well!

It is my wish that one or more of the participants take their products further and market them to the general public.

Tony Gascoigne is currently assembling a team to assist individuals in development of their products and bringing them to market.

In large scale consumer electronics, there is no doubt that Asia will be the centre for such manufacture. However in software, there is no such disadvantage and many Australian companies have had significant success in marketing their software products here and overseas.

On the other hand, low volume high cost margin products can be produced in Australia.

Techniques such as 3D printing and circuit design software and simulation can strongly assist in this process.

Thanks again to our Uplink Compiler Marie van der Klooster for assembling our Uplink issues.

New Uplink articles are most welcome and can be in almost any shape or form with pictorial information most welcome. Let us continue the good work done in the previous quarters and finish the year on a high note.

Every success from the Uplink team!

Alan L. Harvey
Editor, Uplink
CASS Chair

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Editor IEEE Uplink.

HAPPY AND SAFE HOLIDAYS TO ALL OUR MEMBERS AND THEIR FAMILIES