Re-Wiring For Our Future

Dr Michelle Dickinson
Co-Founder, CTO Nanogirl Labs

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HOW DID YOU GET HERE?

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HOW DOES BREAD BECOME TOAST?

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HEATING FILAMENTS!

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Push cassette into box, cartoons appear!

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Turning ferric oxide into pictures

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HOW ARE LAPTOPS SO SMALL?

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SOLID STATE HARD DRIVES!

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CURIOSITY AND TINKERING PROVIDE DEEP LEARNING EXPERIENCES

WHEN THINKING ABOUT EDUCATION WE NEED TO REMEMBER WHAT LEARNING MEANS TO US

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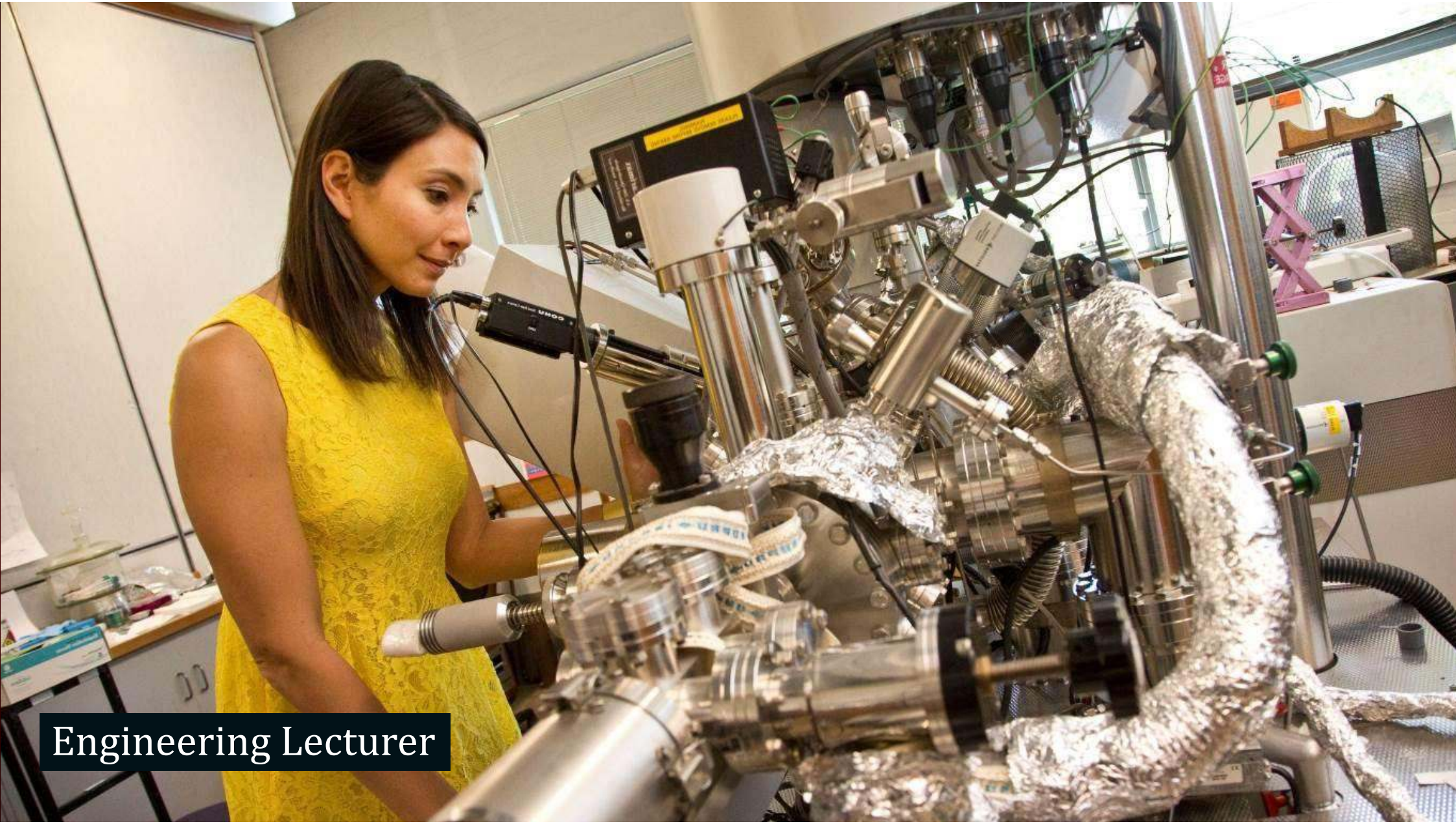
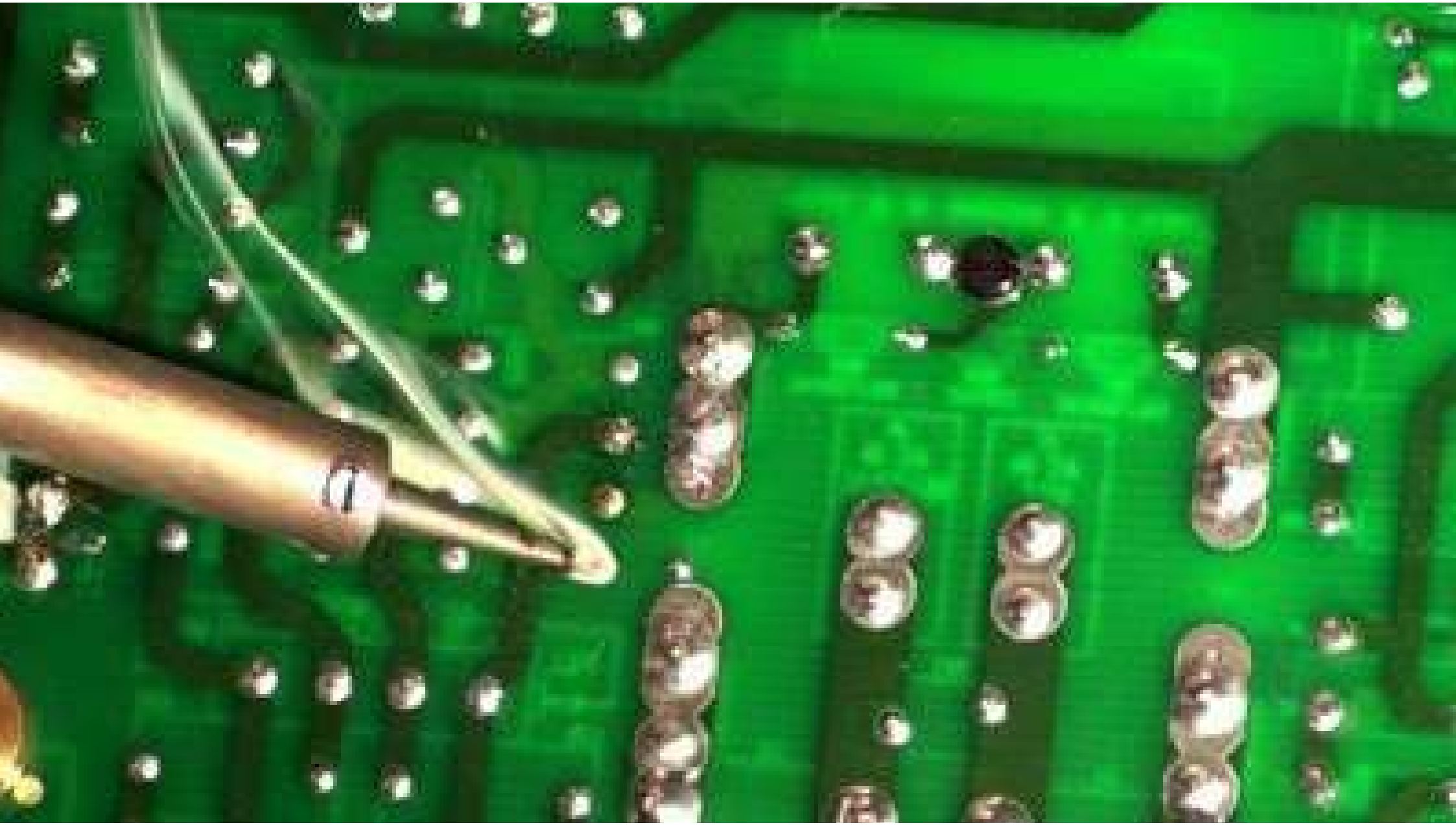
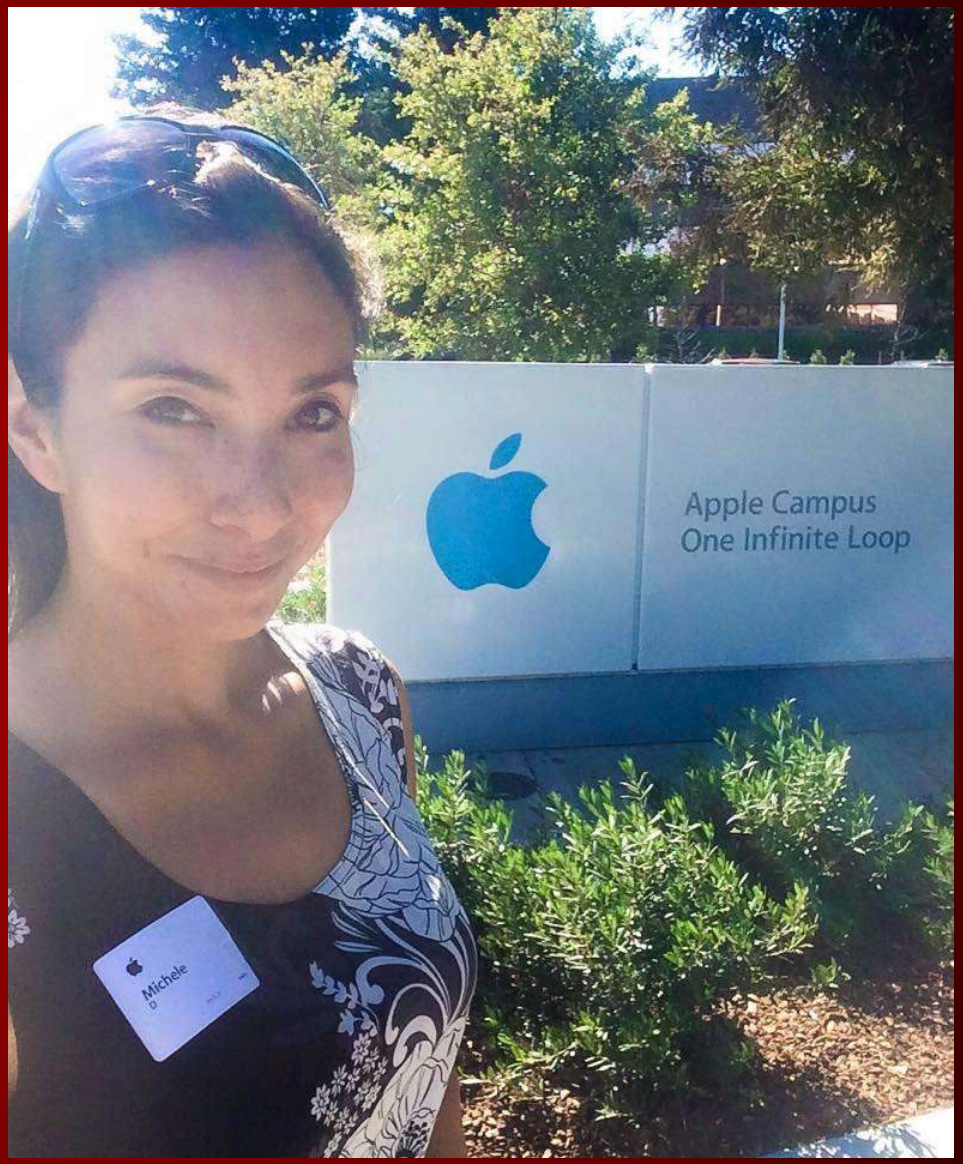

Engineering Lecturer


Nanotechnology Researcher





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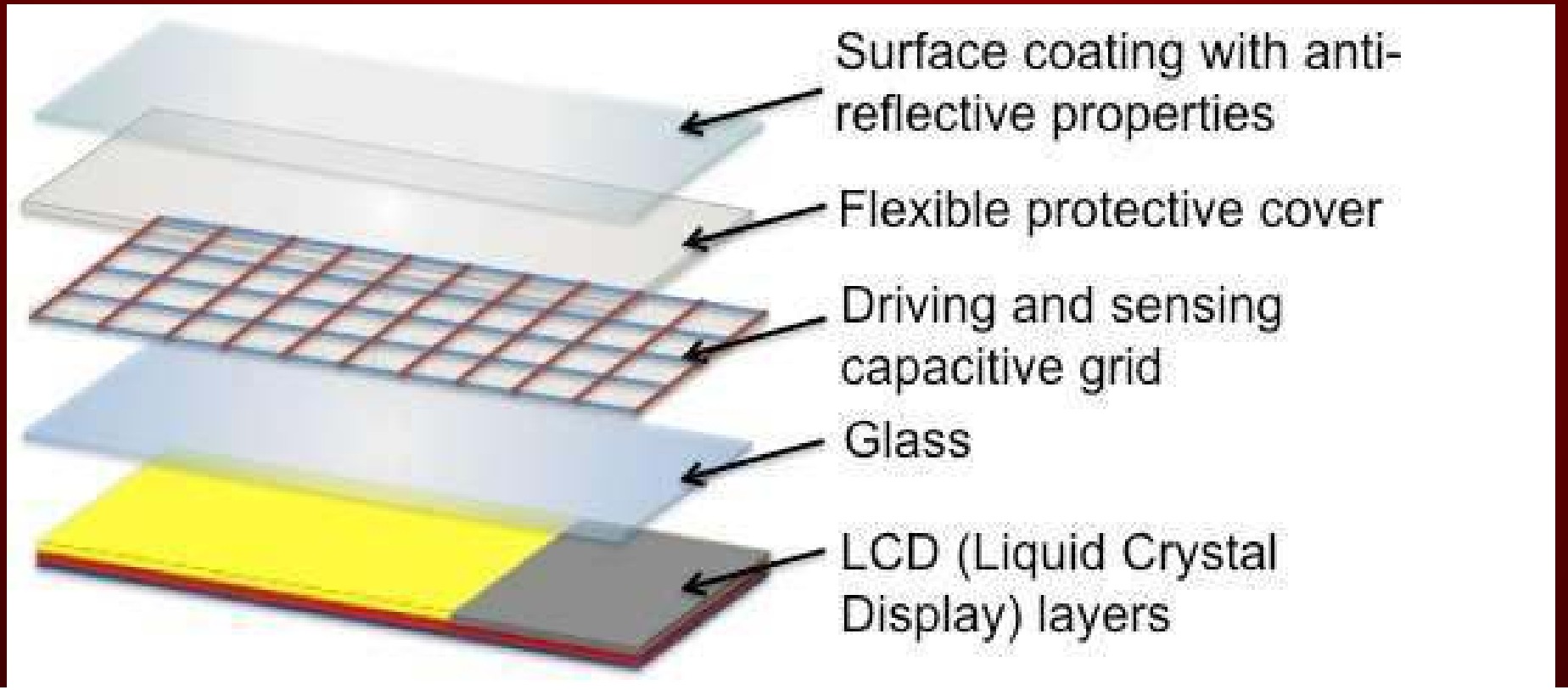
Touchscreens

Use the atoms in your finger to interact with your device



YOU CAN DESIGN THE BEST TECHNOLOGY IN THE WORLD

BUT YOU CAN'T CONTROL HOW PEOPLE WILL USE IT

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Generalized Griffith-Irwin Concept

Equations (1)-(3) are proved experimentally and now present the linear fracture mechanics of materials (LFM).

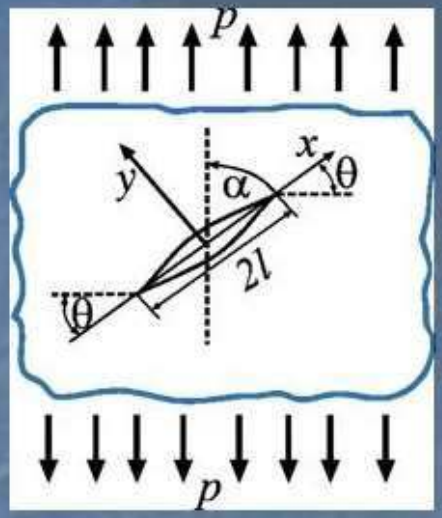
$$K_I(p,l) \neq 0,\ K_{II}(p,l) \neq 0,\ K_{III}(p,l) \neq 0$$

Tension of the plate with the arbitrary oriented crack

$$\lim_{r\to 0} \sqrt{2\pi r}\,\sigma_{\theta\theta}(\alpha, p_*, r, \theta_*) = K_{Ic},$$

$$\lim_{r\to 0} \sqrt{2\pi r}\left\{ \frac{\partial \sigma_{\theta\theta}(\alpha, p, r, \theta}{\partial \theta}\bigg|_{\theta=\theta_*} \right\} = 0,$$

where θ_* is the angle of the initial direction of crack growth

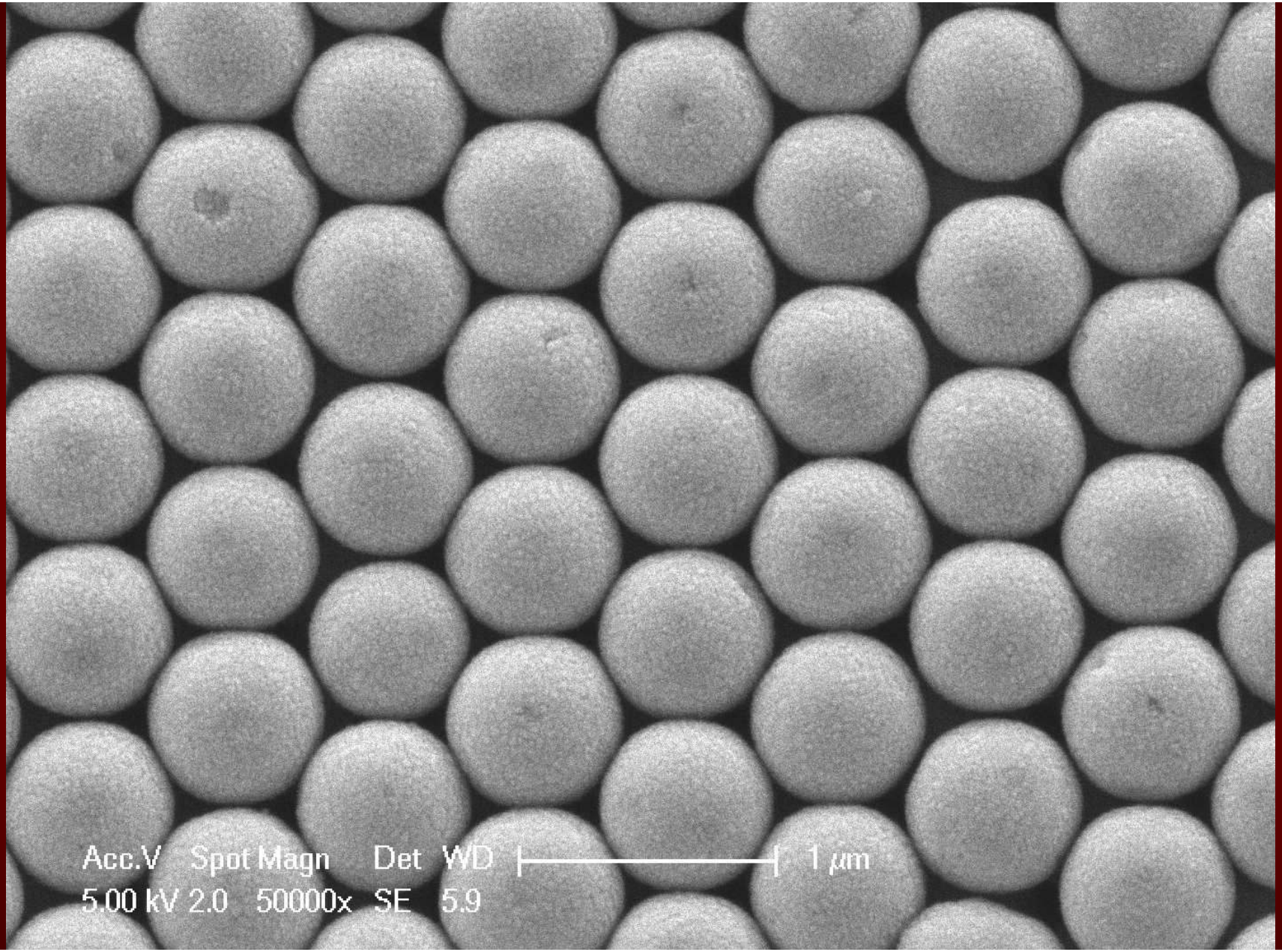


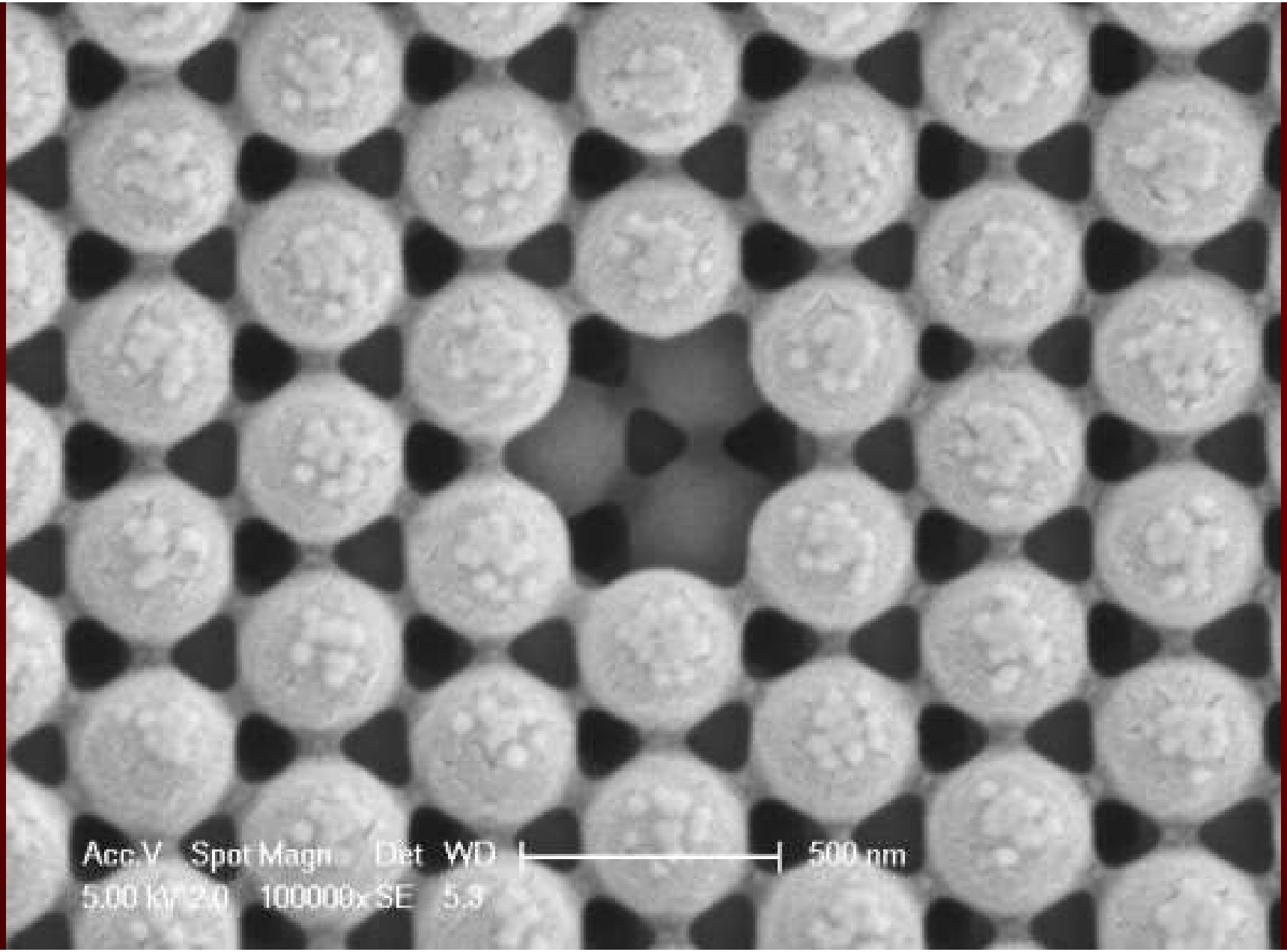
$$\cos^3\frac{\theta_*}{2}\left[K_{I0}(p_*,\alpha,l) - 3\mathrm{tg}\frac{\theta_*}{2}K_{II0}(p_*,\alpha,l)\right] = K_{Ic}, \qquad (1)$$

$$\theta_* = 2\mathrm{arctg}\frac{K_{I0} - \sqrt{K_{I0}^2 + 8K_{II0}^2}}{4K_{II0}}, \quad K_{I0} > 0, \quad K_{II0} \neq 0, \qquad (2)$$

$$K_{I0} = p\sqrt{\pi l}\sin^2\alpha, \quad K_{II0} = p\sqrt{\pi l}\sin\alpha\cos\alpha \qquad (3)$$

Equations (1) and (2) were generalized (O.Ye.Andreikiv et al) for the case $K_{I0} \neq 0, K_{II0} \neq 0, K_{III0} \neq 0$


Acc.V Spot Magn Det WD 1 µm
5.00 kV 2.0 50000x SE 5.9


Acc.V Spot Magn Det WD
5.00 kV 2.0 100000x SE 5.3
500 nm

Generalized Griffith-Irwin Concept

Equations (1)-(3) are proved experimentally and now present the linear fracture mechanics of materials (LFM).

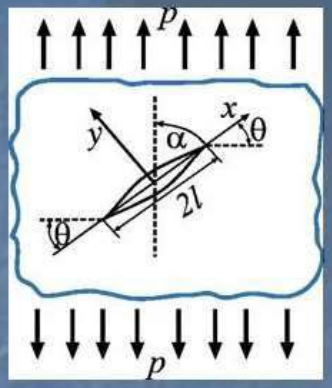
$$K_I(p,l) \neq 0,\ K_{II}(p,l) \neq 0,\ K_{III}(p,l) \neq 0$$

Tension of the plate with the arbitrary oriented crack

$$\lim_{r\to 0} \sqrt{2\pi r}\,\sigma_{\theta\theta}(\alpha, p_*, r, \theta_*) = K_{Ic},$$

$$\lim_{r\to 0} \sqrt{2\pi r}\left\{ \frac{\partial \sigma_{\theta\theta}(\alpha, p, r, \theta}{\partial \theta}\bigg|_{\theta=\theta_*} \right\} = 0,$$

where θ_* is the angle of the initial direction of crack growth



$$\cos^3\frac{\theta_*}{2}\left[K_{I0}(p_*,\alpha,l) - 3\,\mathrm{tg}\frac{\theta_*}{2}K_{II0}(p_*,\alpha,l)\right] =$$

$$\theta_* = 2\,\mathrm{arctg}\frac{K_{I0} - \sqrt{K_{I0}^2 + 8K_{II0}^2}}{4K_{II0}}, \qquad K_{I0} > 0,$$

$$K_{I0} = p\sqrt{\pi l}\sin^2\alpha, \quad K_{II0} = p\sqrt{\pi l}\sin\alpha\cos\alpha$$

Equations (1) and (2) were generalized (O.Ye.Andreikiv et al) for the case $K_{I0} \neq 0, K_{II}$

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THE FUTURE OF TERTIARY EDUCATION

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CAN WE CREATE HUMAN EXPERIENCES WITH DIGITAL TECHNOLOGY?

THE FUTURE OF TECHNOLOGY IN TERTIARY EDUCATION

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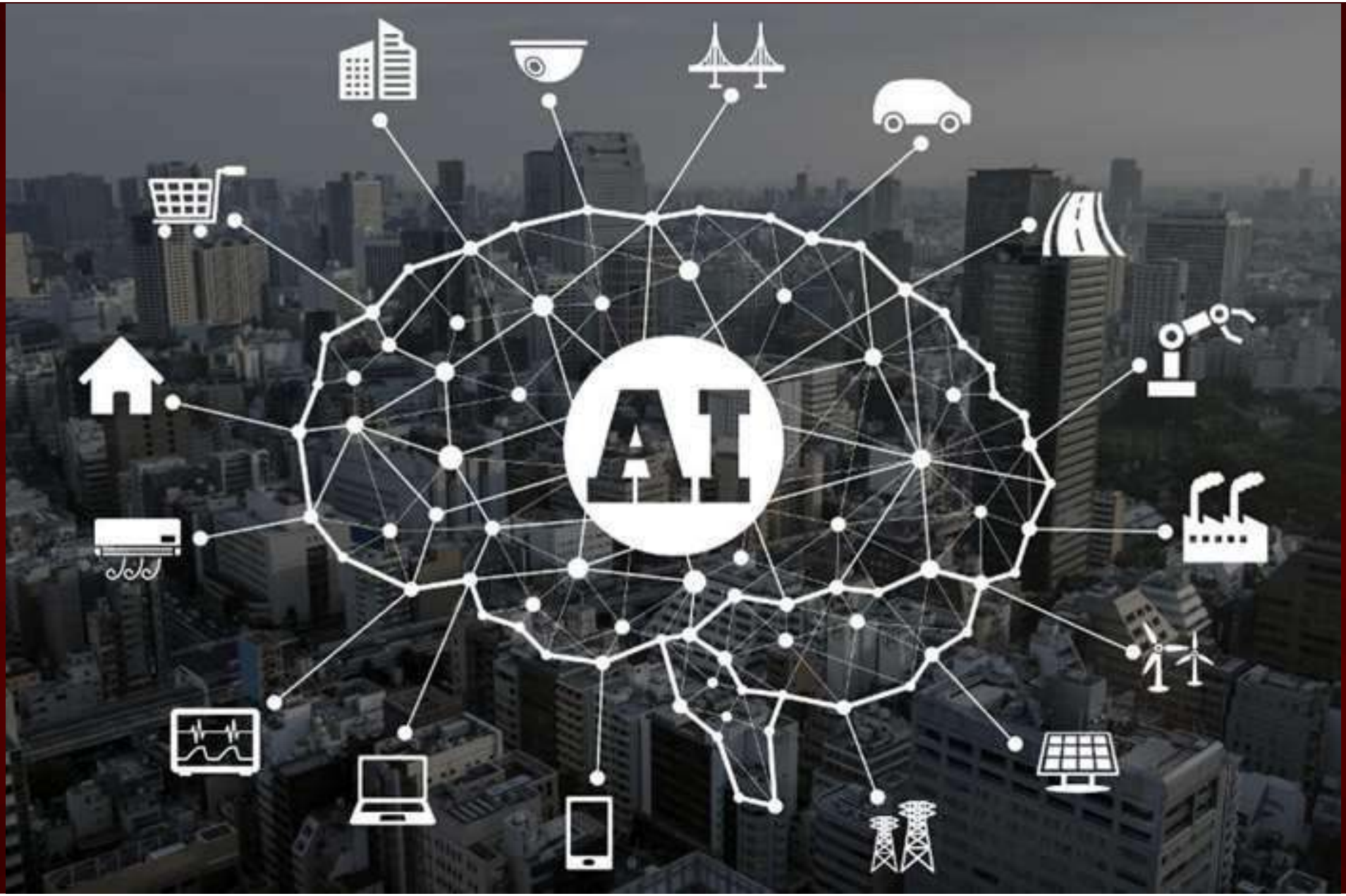
AI

ROSS

WHAT IS ROSS? EVA COVERAGE ABOUT BLOG WHITEPAPER LOGIN GET STARTED

AI Meets Legal Research

ROSS is an advanced legal research tool that harnesses the power of artificial intelligence to make the research process more efficient.

GET STARTED

EDITOR'S PICK | 27,774 views | Jun 28, 2018, 11:51am

This AI Just Beat Human Doctors On A Clinical Exam

Parmy Olson Forbes Staff

AI, robotics and the digital transformation of European business.

COMPETENCY BASED LEARNING

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EXPECTATION OF EVERYTHING AVAILABLE ANYWHERE, ANYTIME

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INNOVATE
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WHAT MAKES INNOVATIVE PEOPLE TICK?

No. 8 Re-charged
Kitchen Science Cookbook

Innovators see normal things in a different way

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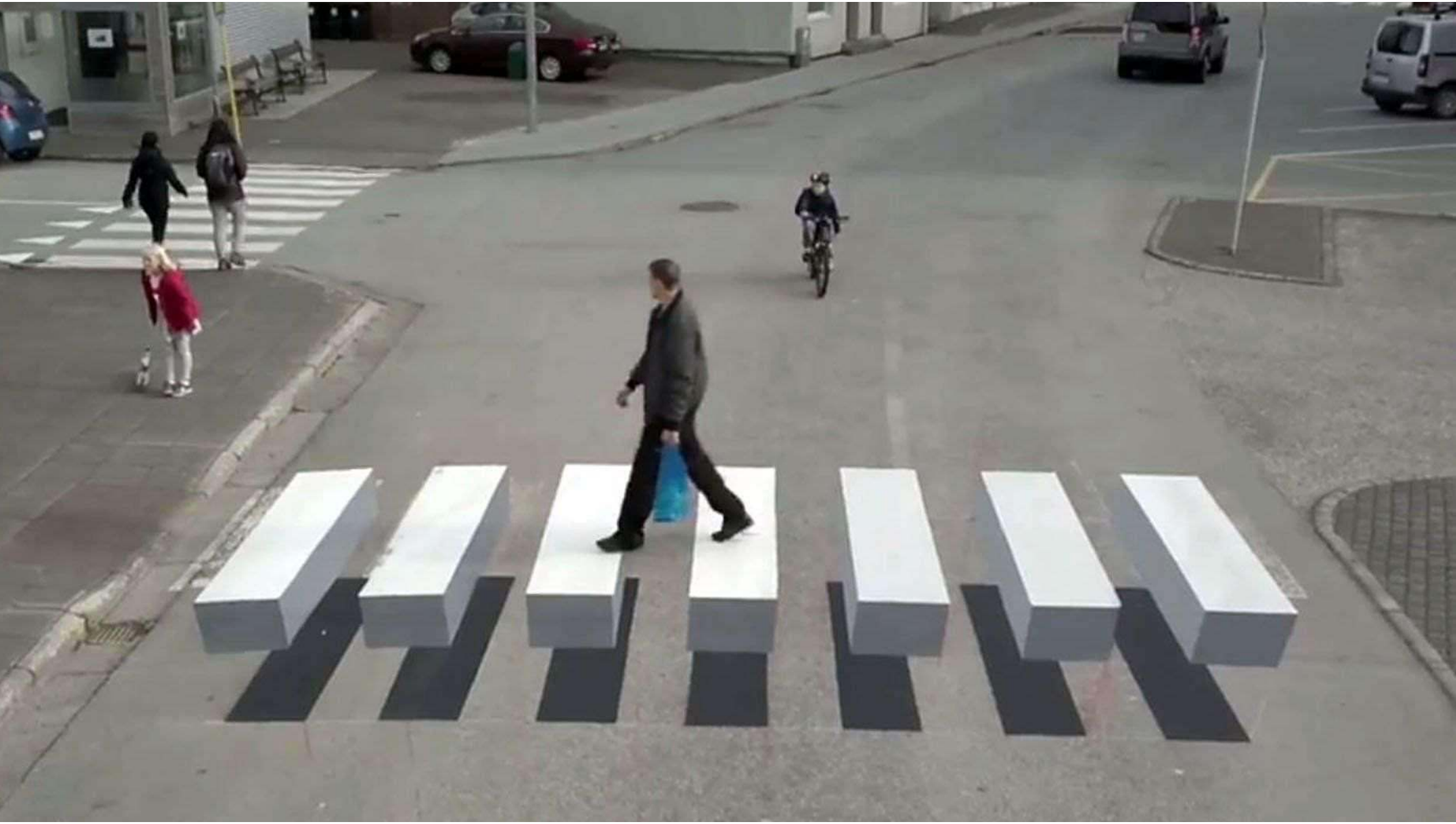

Uber did not kill the taxi business.

Limited access and fare control did.

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Netflix did not kill blockbuster.

Ridiculous late fees did.

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Apple did not kill the music industry.

Being forced to buy
full-length albums did

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Technology by itself is not the disruptor.

Not being customer centric is the biggest threat to business.

WHO IS YOUR CUSTOMER?

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WHAT DEVICE DOES YOUR CUSTOMER USE?

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Death of screens

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Death of touchpads


B FU 2010


You can’t predict the future
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WHAT DOES TERTIARY EDUCATION LOOK LIKE?

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Death of Lectures
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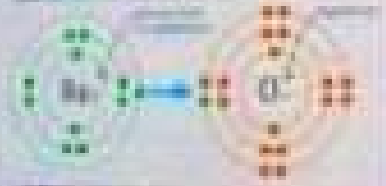
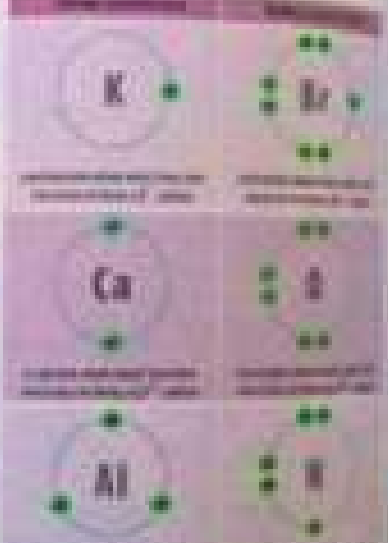
Death of Labs

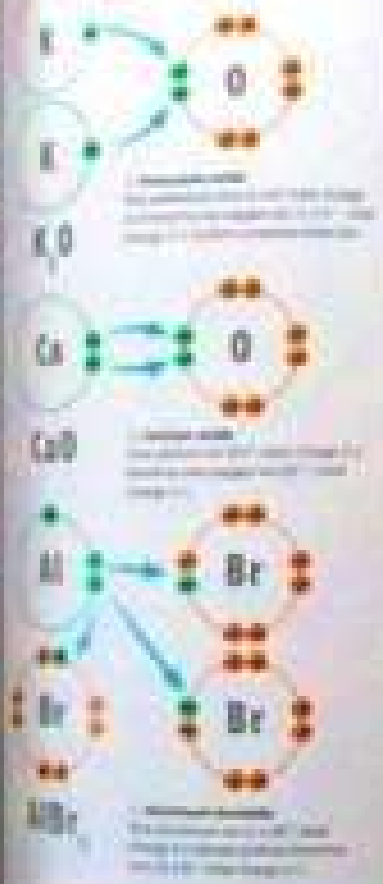
Ionic bonding

What is an ion?

Octet rule







Reactivity


sik ist überall
SCAN
WITH
ARLOOPA

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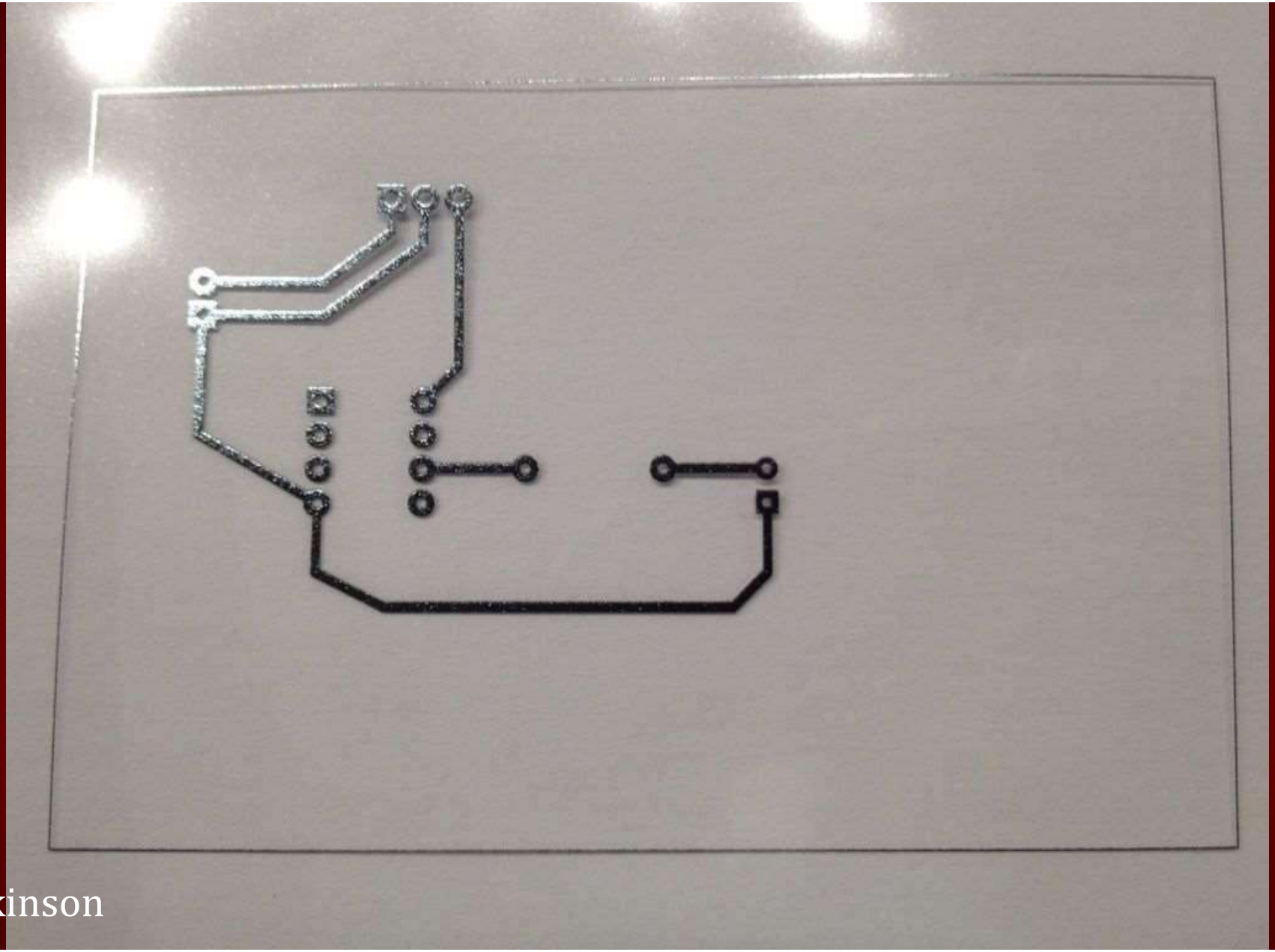

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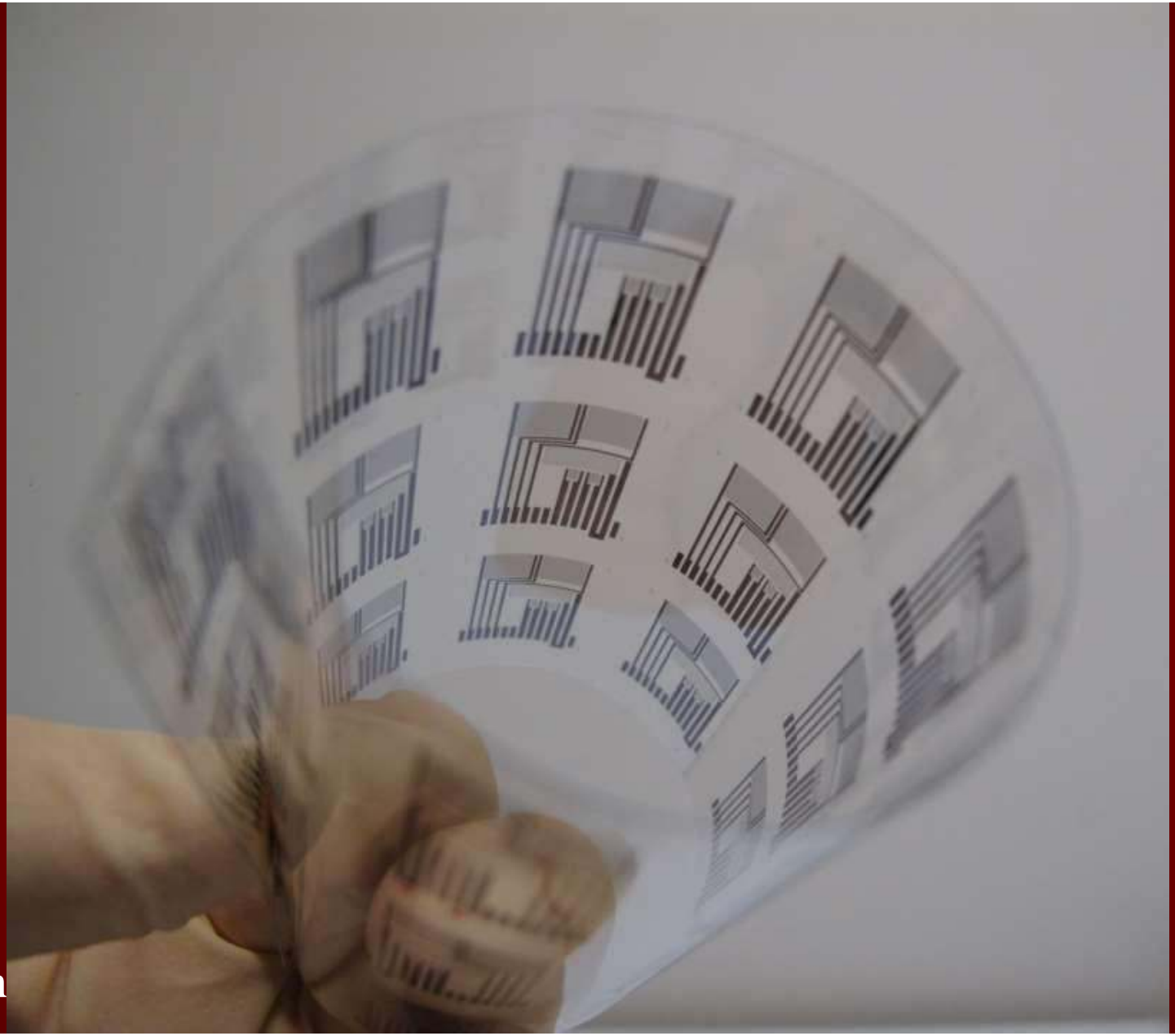

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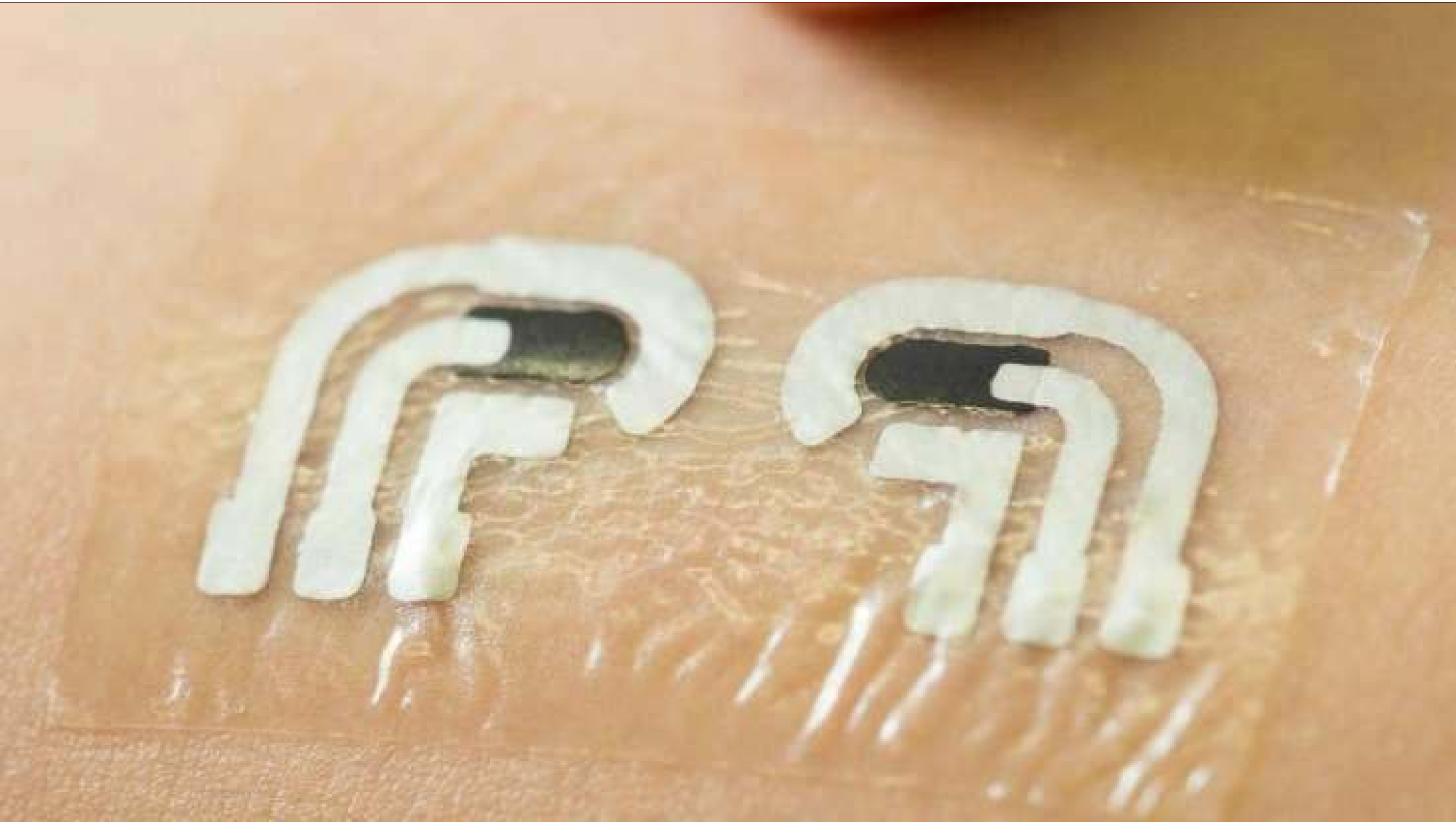
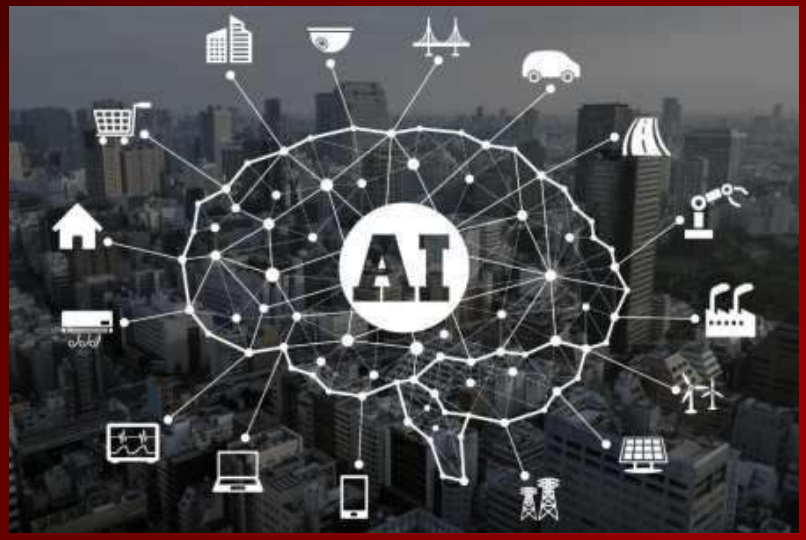



AI

Curtin University in IoT rollout

University combining data visualisation, video analytics, and live face matching technologies

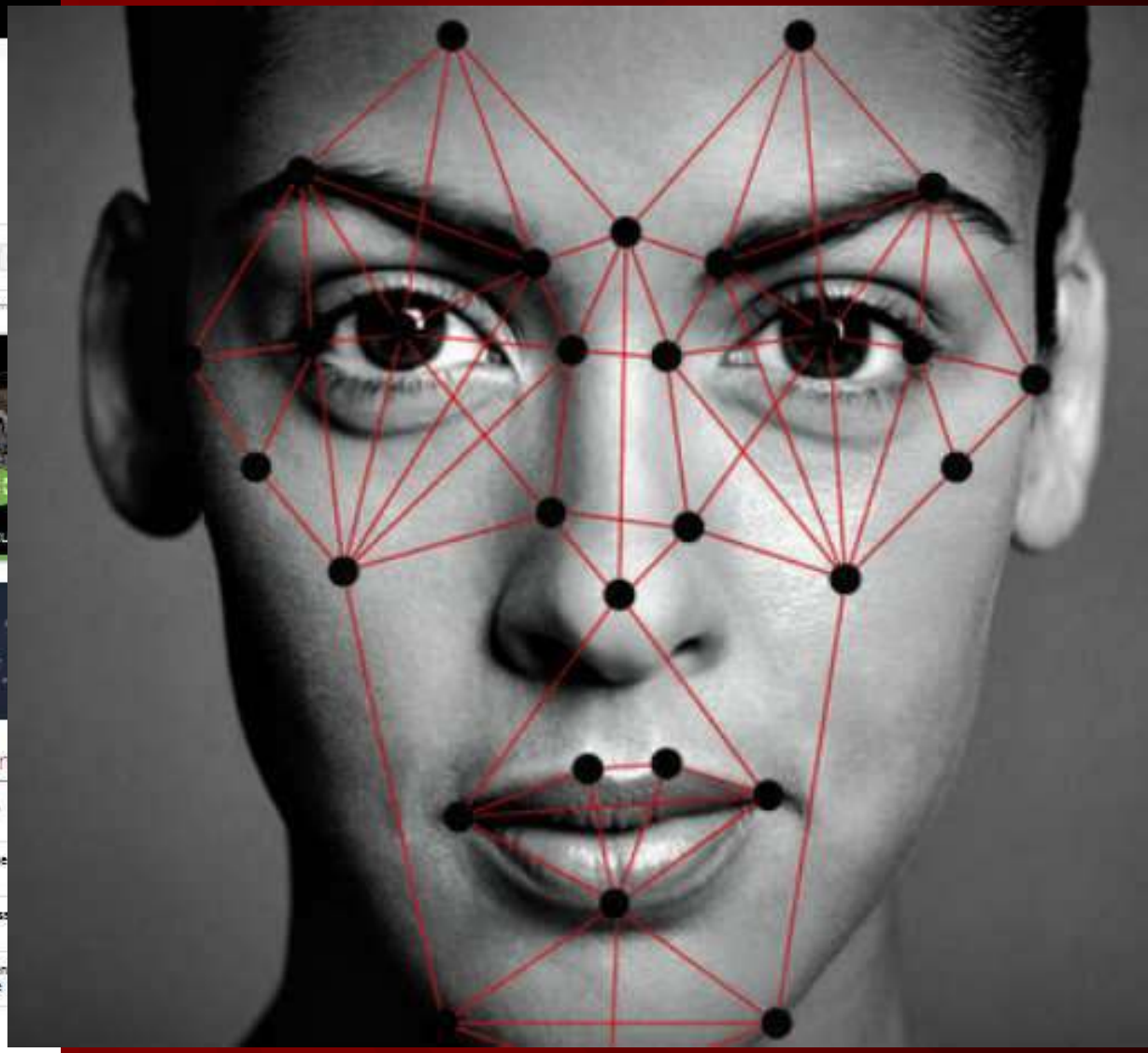
Byron Connolly (CIO)
08 May, 2017 12:36

Curtin University is rolling out 'Internet-of-things (IoT) software and devices that will provide advanced data insights to help with the daily running and usage of its large Perth campus.

The university is using an IoT solution, supplied by Hitachi, to advance its 'smart campus' deployment, which it said improves the student experience and classroom learning, and attracts industry to collaborate on data-driven research.

Curtin University is combining video data with operational data to better understand campus operations and building utilisation, which has become a major part of Curtin's smart campus initiative, said Curtin chief operating officer, Ian Callahan. Curtin has more than 60,000 students and 4,000 staff.

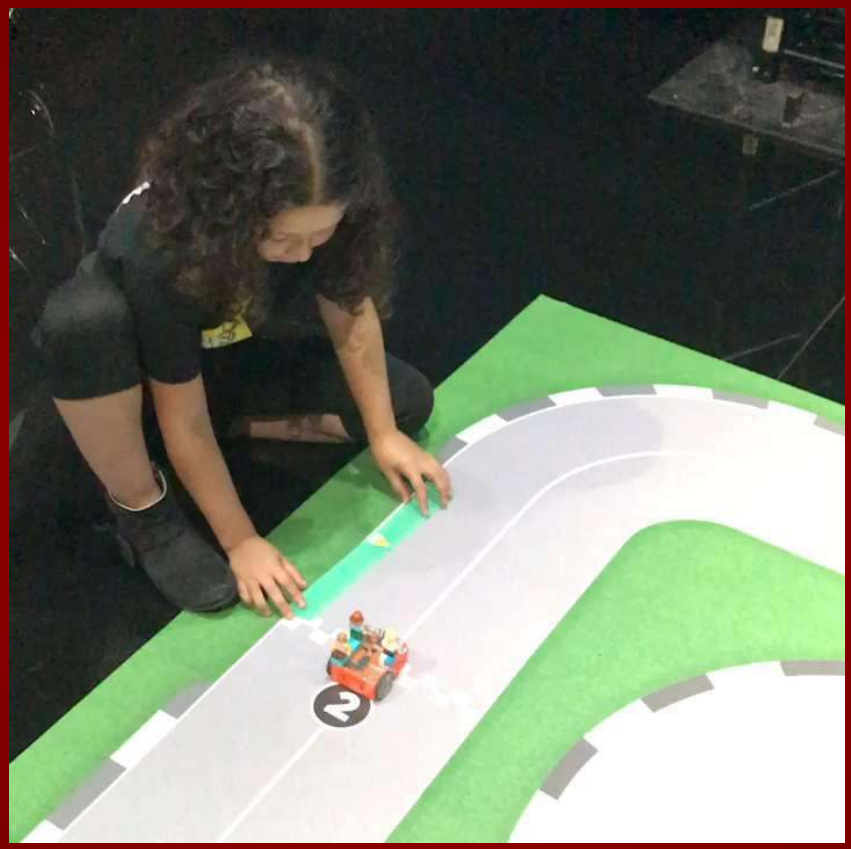
The university is integrating data visualization, video analytics, and live face matching technologies in a single analytics dashboard that provides the real-time knowledge the university needs to make decisions about classes, operations, and future requirements.




Knowledge comes from learning
Wisdom comes from living


Multi-cloud strategies
Azure backup and its adoption
Smart campus through video, IoT and AI
WHO IS YOUR CUSTOMER?
CURIOSITY AND TINKERING PROVIDE DEEP LEARNING EXPERIENCES
KNOWLEDGE COMES FROM LEARNING
WISDOM COMES FROM LIVING
YOU CAN'T CONTROL WHAT OTHER PEOPLE DO WITH YOUR TECHNOLOGY
GPU enabled remote desktops
Artificial Intelligence for Cybersecurity
Multifactor Authentication


GOAL
AHEAD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Re-Wire For Our Future (but don't forget the donut)

Dr Michelle Dickinson
Co-Founder, CTO Nanogirl Labs

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