

International Week 13-17 March 2023

Elektronica-ICT / Electronics-ICT @ Campus De Nayer

Programme 13 March 2023		
For 1 st phase students Elektronica-ICT / Electronics-ICT		
13:00-15:00	<p>What? The Network is evolving! by Marnix Wyns van Cisco</p> <p>The network, a silent entity that's keeping our world and economy afloat. We truly notice it's importance when something goes (very) wrong, think about wrong BGP configurations from Microsoft of Meta, which disrupted 30% of the worldwide internet traffic. Even our small, "traditional" LANs have expanded to a point where a single failure can cause big consequences.</p> <p>Because of this enormous infrastructure, you can't just plug in a console cable anymore and start debugging. We find ourselves amidst a variety of paradigm shifts, networks have to be agile, yet are larger than they've ever been before. We don't configure individual devices anymore, but use code to direct our entire infrastructure, whether it's compute, network, or cloud.</p> <p>The talk is split into 2 parts, a general introduction about how networks have evolved the past 10 years, followed with a bit more depth regarding the roles of APIs and automatization in terms of the network.</p>	F110

Programme 14 March 2023		
9:30-10:00	Welcome and registration	Foyer K-building
10:00	Welcome by Wouter Lutin (Unitmanager Tech & IT study programmes Campus De Nayer)	K103
10:00-11:00	<p>Keynote "Soft Skills for Technology" by Konstantinos Petridis (Hellenic Mediterranean University, Crete Greece)</p> <p>Knowledge of soft skills or power skills is increasingly coming into focus and being recognized as critical for success - hence we call them "Success Skills", and categorize them as "Hot Skills". Research by Harvard University, Carnegie Foundation, and Stanford Research Center has concluded that 85% of job success comes from having well-developed soft skills and people skills, and only 15% comes from Technical skills and knowledge (hard skills). In this lecture, we will present (a) why soft skills are essential; (b) an example of 'Presentation Skills' ; and (c) on how to teach soft skills using modern pedagogies.</p>	K103
11:00-12:00	<p>Keynote "Surveillance Art, Dying Phones and Fake Likes" by Dries de Poorter</p> <p>Come and listen to Dries Depoorter and find out the value of likes and followers. Dries Depoorter is an AI artist. He uses technology to create interactive art installations. Art that opens the door for discussions about privacy, AI, surveillance and social media.</p>	K103

	<p>It might be a good idea to help students stay focused during lectures. Whenever you're on your phone we could automatically send you a message to stay focused. In his work 'Flemish Scrollers' Dries created software that uses an open live feed of the Flemish parliament and AI to detect if politicians are on their phone during debates. The software automatically sends a public tweet to the politician asking to be focused on the debate. A breach of privacy</p> <p>What's your view on privacy when you have the power? Using unsecured surveillance cameras and AI Dries identifies jaywalkers all over the world. With a simple push of a button you can anonymously report these persons to the police. Would you push this button?</p>	
12:00-13:00	International Market organised by our international students	Foyer K building
13:00-13:30	<p>You choose: Four parallel sessions of students who share their Erasmus experience</p> <p>K107: Spain & USA K108: Chech Republic & Norway K114: the Netherlands & Italy K204: the Netherlands & Germany</p>	K-rooms
13:30-13:45	Break	
13:45-14:15	<p>You choose: Three parallel sessions of students who share their Erasmus experience</p> <p>K107: Ghana & Austria K108: the Netherlands & Ireland K114: Austria</p>	K-rooms
14:15-14:30	Break afternoon programme	foyer K103
14:30-15:30	<p>Keynote by Maarten Mees (R&D manager at imec responsible for the electrochemical storage and conversion group)</p> <p>As a world-leading R&D hub, imec aspires the impossible and aims for disruptive innovation. This to maximize societal impact by creating smart sustainable solutions that enhance quality of life. Since its foundation in 1984, imec has been driving semiconductor scaling and it is committed to continue doing this in the coming decade. Moreover, imec's R&D on advanced semiconductor technology, and its global network of industry leaders is a unique differentiator in that it offers R&D platforms for various application domains. An introduction will be given to the technology R&D platforms and how they enable new opportunities beyond that of the traditional nanoelectronics. Specific cases in smart mobility and industries will be shortly addressed as well as a deep-dive in imec's R&D on sustainable energy technologies.</p>	K103
15:30-16:30	<p>Keynote by Tesla</p> <p>More details will follow shortly</p>	K103
16:30	End	

Programme 15 March 2023

For 1st and 2nd phase Elektronica-ICT, afstudeerrichting Elektronica /

For 1st and 2nd phase Electronics-ICT, minor Electronics

Please bring your laptop to the sessions

9:00-12:00	<p>Practice introduction to ASIC design by Matt Venn (Zero to ASIC)</p> <p>In this hands-on workshop you will learn some semiconductor basics, how the building blocks of digital logic work and make a simple design that is ready to manufacture.</p>	A116 A117
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	<p>From electronic engineer to open source chip designer & the history and state of open source chip design by Staf Verhaegen (Chipflow)</p> <p><i>Open source chip designer:</i> In this session Staf Verhaegen will talk about his career as electronic engineer at imec. He will also touch on his hobby as an (open source) programmer and how both experiences led him to work on open source chip design software and using that to make actual open source chips.</p> <p><i>History open source chip design:</i> At the end of last century a revolution in the open source software and operating system was started by the Linux kernel and the Linux distributions based on that. Today big part of the internet and the mobile operating systems is run by that kernel.</p> <p>Today similar evolutions are seen in the open source computer aided design software for printed circuit boards as well as for chip design. In this talk an overview will be given of those evolutions. Guided by live demos more insight will be given in this wonderful world of hardware development possibilities both as a hobbyist or as a career opportunity.</p>	
13:00-16:00	<p>From electronic engineer to open source chip designer & the history and state of open source chip design by Staf Verhaegen (Chipflow)</p> <p><i>Open source chip designer:</i> In this session Staf Verhaegen will talk about his career as electronic engineer at imec. He will also touch on his hobby as an (open source) programmer and how both experiences led him to work on open source chip design software and using that to make actual open source chips.</p> <p><i>History open source chip design:</i> At the end of last century a revolution in the open source software and operating system was started by the Linux kernel and the Linux distributions based on that. Today big part of the internet and the mobile operating systems is run by that kernel.</p> <p>Today similar evolutions are seen in the open source computer aided design software for printed circuit boards as well as for chip design. In this talk an overview will be given of those evolutions. Guided by live demos more insight will be given in this wonderful world of hardware development possibilities both as a hobbyist or as a career opportunity.</p> <p>Practice introduction to ASIC design by Matt Venn (Zero to ASIC) In this hands-on workshop you will learn some semiconductor basics, how the building blocks of digital logic work and make a simple design that is ready to manufacture.</p>	K113 K112
<p>For students 2nd phase Elektronica-ICT, afstudeerrichting ICT / 2nd phase Electronics-ICT, minor ICT</p>		
9:00-12:00	<p>Flower-Fertilising Nano Drone by Toon Goedemé (Beeld- en spraakverwerking, PSI, KU Leuven) Generation Large Scale AI models like Dall-E and Chat(GPT)</p> <p>Conversational AI by dr. Nava Shaked (HIT School of Multidisciplinary Studies, Israel)</p> <p>Artificial Intelligence (AI) is a comprehensive concept that includes a wide spectrum of technologies, platforms, applications, interfaces, etc. As of today, a huge amount of time is being spent in the virtual worlds of social networks, gaming and entertainment. Artificial intelligence is deployed to "improve" all of these interactions to the point that sometimes it is hard to determine where the human ends and the machine begins.</p> <p>Using AI based technologies for intelligent interactions such as NLP, Speech and affective interfaces provide new opportunities, for example to enhance processes of learning and to assist the learners themselves. Examples are adapted content,</p>	A018

	<p>machine learning-powered assessment, algorithms that provide timely and personalized feedback, and more. AI applications however, necessarily operate by both collecting and producing great amounts of information about users and their environments, and we must be ready to raise important questions about quality, biases, interpretation and privacy.</p> <p>The talk will introduce the potential impacts of AI upon our near future, with a focus on language technologies and conversational AI, providing different points of view and examples from the academic, educational and practical world.</p> <p>AI and Ethics by dr. Sayfan G. Borghini (HIT School of Multidisciplinary Studies, Israel)</p> <p>The recent boom of Artificial Intelligence applications in day-to-day life brings several concerns regarding their ethical usage and potential consequences. Multiple voices from the business and academic world have surfaced the fear that AI may usher irreversible impacts, it may violate privacy, use data for illegitimate motives, manipulate humankind and drown human voices in fake content. We cannot disregard that artificial intelligence plays a major role today in shaping how we come in contact with information, process learning and form decisions in multiple areas. How are we to understand and relate to the potential consequences? And how to discuss their ethical aspects? This lecture will introduce some basic points of the ethical frames that accompany the exploration of human interaction with intelligent machines, and their potential consequences.</p>	
13:00-14:00	HIT Israel and Exchange Possibilities by Ira Ivshin Guetta (HIT School of Multidisciplinary Studies, Israel)	A018
<p>For students 2nd phase Elektronica-ICT, afstudeerrichting ICT, keuzetraject SSS / 2nd phase Electronics-ICT, minor ICT, traject SSS</p>		
14:00-16:00	<p>Cyber Security by Tom Van den Eynde (Cybervalue)</p> <p>We will zoom in on the evolving cybersecurity landscape, how the world is getting more digital and how that effects the cybersecurity challenges we face today and what drives cybersecurity within organizations. This means we need to continuously evaluate, rethink and adapt our security to solve these challenges. We will show you how you can tackle cybersecurity in an organization to make sure you keep up with the evolving threats. The session will include a workshop where we will do an assessment for IT security inside a medium sized company and propose a roadmap to implement improvements to strengthen the company's security posture.</p> <p>[If there is some time left]-> We will end with an interactive walkthrough of what a company goes through when they get hit with a ransomware attack and how you should prepare and respond to such an attack.</p>	F107
<p>For students 2nd phase Elektronica-ICT, afstudeerrichting ICT, keuzetraject App & AI / 2nd phase Electronics-ICT, minor ICT, traject App & AI</p>		
14:00-16:00	<p>Convolutional Neural Networks by Kurt Stremch (Verotech)</p> <p>The use of machine learning on IoT data has opened up lots of opportunities. Neural networks are used to analyse the data and make sense of it by converting data into useful information in real-world applications such as speech recognition or image classification. Today, optimized neural networks found their way from the cloud to IoT devices. These high-end embedded devices are much more powerful than tiny embedded devices in wearables or implanted medical devices. This presentation is a talk about the research aims to investigate to which extent convolutional neural networks can be used on tiny embedded systems in the context of audio classification. Three challenges regarding a cochlear implant application have been considered; hardware resource limitations, the model type versus nature of sounds to classify, and the impact of subcutaneous MEMS microphone. Experiments, have showed post quantization and quantization aware training models can score equally well on the UrbanSound8k dataset compared to floating point models. Acoustic event detection</p>	F107

	<p>models can characterize an acoustic environment where the scene classification score can be improved by transferring knowledge from an event classification task. The simulated subcutaneous recordings performed poor on all features still the Mel feature achieved the highest classification score.</p> <p>This research shows that convolutional neural networks for audio classification can be effectively reduced in size to make it suitable for tiny embedded devices, however, the edge hardware specifications must be taken into account.</p>	
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Programme 16 March 2023

For students 2nd phase Elektronica-ICT, afstudeerrichting Elektronica/2nd phase Electronics-ICT, minor Electronics

Please bring your laptop to the sessions

9:00-12:00	<p>Introduction EMC by Tristen Boeckx (Würth Electronic)</p> <p>During the topic EMC basics, we will zoom in on the basic principles of EMC (Electromagnetic Compatibility). We will see which tests and standards apply and what they mean. In addition, we will test how we can debug them, for instance the difference between common mode/differential noise and why do you always have to add that 100nF to your microcontroller? This will be done with a theoretical approach as well as a practical demo.</p>	K204
13:00-16:00	<p>Strain Gauge Instrumentation by Phillippe Zwaenepoel (Quantify BV)</p> <p>In this elaborated introduction to strain gauge measurements, the purpose is to introduce the students to the basics of strain gauges with a large enough amount of information so they know what to expect in a real life working environment.</p>	K107
<p>For students 2nd phase Elektronica-ICT, afstudeerrichting ICT/2nd phase Electronics-ICT, minor ICT</p>		
9:00u-12:00	<p>Keynote by Konstantinos Petridis & colleagues (Hellenic Mediterranean University, Crete Greece) More details will follow shortly</p> <p>New Agile Teaching Methodologies by Georges Yannis (Hellenic Mediterranean University, Crete Greece) More details will follow shortly</p> <p>Nikos More details will follow shortly</p>	F113
13:00-14:00	<p>Python for Data Analytics & Machine Learning by Galyna Tabunshchik (National University "Zaporizhia" Polytechnic)</p> <p>During this seminar students will learn how to use python packages, such as NumPy, pandas scikit-learn for the Data Analysis tasks. After this seminar students will be able:</p> <ul style="list-style-type: none"> • to use python packages for data extraction, data preparation, data visualisation • to implement programs for basic statistical analysis, • to create regression and classification models 	A018