

# **XTOP – 2023**

## **Conference Proceedings**



*Date: Friday May 5, 2023 18:15 to Saturday May 6, 20:00*

*Venue: Building 3 R3302, Yuan Ze University (YZU)*

*135 Yuan Dong Rd., Chung-Li District, Taoyuan City, Taiwan, ROC*

*Website: <https://xtop.kejiyingwen.com>*

*Sponsored by*

*International Program in Electrical and Communication Engineering,*

*Yuan Ze University, Chung-Li, Taiwan*

Organized by Jonathon David White

Conference Secretary: Sweta Jha

This book belongs to:<Name-EN>,<Chinese Name>,<ID>

# About the XTOP Conferences

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## Overview

The XiaoTu Conference of Science and Engineering with Open Participation (XTOP), held since 2005 at leading universities in Taiwan, provides an opportunity for students in the field of engineering to present in English to their peers in a friendly setting. The conference endeavors to promote technical exchange in English among students. A unique feature of this conference is that presenters have the opportunity to receive written feedback on their presentations from established researchers, – native English speakers as well as their peers.

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## Motivation

The organization of this conference was prompted by two trends in Science and Engineering – *globalization*, and the rise of *interdisciplinary* research. Its purpose is thus 2-fold.

1.To provide students a chance to present (orally) their research in *English* in a standard conference setting. The hope is that this experience will give students greater confidence in presenting their work in an international setting.

2.To provide a venue in which students can meet and *network* with students in other universities. The hope is that these relationships will in the future give rise to fruitful collaborations.

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## Presentation Format

Talks (12 min talk + 3 min for questions) will be scheduled in related sessions and chaired by fellow students. All abstracts will be published electronically and archived. In general, one should prepare 12-15 view graphs for a talk:

1. Title Page (Include a picture of your supervisor/coauthors)
2. Outline of the talk
3. General Introduction
4. General Introduction and Importance of the Research
5. Overview of the Research area
6. Overview of the Research area
7. Experimental techniques
8. Experimental techniques
9. Key Research Results
10. Key Research Results
11. Key Research Results
12. Conclusions & importance of the work
13. Next steps (e.g. what is to be done next / what you will do next)
14. Possibilities for future collaboration

## Award Winners

	Student's Choice Award for Best Talk*	Organizer's Choice Awards*
<b>Gold</b>	Nathan Wu 吳冠勝	Alex Chu 朱軒正 (Talk) Sphehile Mdlovu 婁詩農 (Top Chair) Daphne Du 杜奕妍 (Top Chair Runner Up) Rita Lin 林昕秀 (Top Chair Runner Up)
<b>Silver</b>	Franya Chandler 陳妃娜	
<b>Bronze</b>	Jack Chen 陳政楷	

\*Winners of the Student's Choice Award are not eligible for the Teacher's Choice Award

## Session Chairs

Session	Session Chair	YZU Student ID
F1 Select	Nathan Wu	1103749
S1	Sphehile Mdlovu	1103750
S2	Franya Chandler	1103745
S3	Jack Chen	1103742
S4	Alex Chu/ Daphne Dy	1103725 / 1103743
S5	Rita Lin	1103720

## Schedule at a Glance

Time	Activity
18:15 ~ 18:30	Friday Conference Registration: Sign In
18:30 ~ 20:00	Friday Selected Talks
08:00 ~ 08:15	Saturday Conference Registration
08:15~ 10:00	Session 1: Great scientists
10:00~ 10:15	Coffee Break
10:15 ~ 12:00	Session 2: Engineering and Technology
12:00 ~ 12:45	Lunch (Courtesy of the YZU International Program)
12:45 ~ 14:45	Session 3: AI and its Applications
14:45 ~ 15:00	Coffee Break
15:00 ~ 17:00	Session 4: Engineers and their work
17:00 ~ 18:00	Dinner Break
18:00 ~ 19:00	Session 5: Scientists
19:15 ~ 19:30	Closing Remarks & Award Ceremony

## Talks

### **FD: 18:30 ~ 20:00 Selected Talks – Chair: Nathan**

	Time	Speaker	Title	Mark
1	18:30 ~ 18:45	Jon	Welcome, About the Conference	0→100
2	18:45 ~ 19:00	Duke	Archimedes, the great scientist from bc	
3	19:00 ~ 19:15	Sphehile Mdlovu	IOT-based health monitoring system	
4	19:15 ~ 19:30	Ali Gulsatar	Influence of Accelerometer Position and Algorithm on Evaluated Sleep Parameters	
5	19:30 ~ 19:45	Raheem	Bed exit detection using a passive infrared camera	
6	19:45 ~ 20:00	Sweta Jha	Is this individual variability in the light dependence of melatonin suppression correlated with sleep disturbances?	

### **S1: 08:15~ 10:00 Great Scientists – Chair: Sphehile Mdlovu**

	Time	Speaker	Title	Mark
1	8:15 ~ 8:30	Thomas	Archimedes	
2	8:30 ~ 8:45	Daphne	Galileo Galilei	
3	8:45 ~ 9:00	Kenny	Galileo's contribution of modern experimental science	
4	9:00 ~ 9:15	Pierre	Edward Jenner and Vaccines	
5	9:15 ~ 9:30	Rose	Isaac Newton's Life	
6	9:30 ~ 9:45	Angus	Stephen William Hawking	
7	9:45 ~ 10:00	Iran	Stephen William Hawking-general relativity (WITHDRAWN)	

### **S2: 10:15 ~ 12:00 Engineering & Technology – Chair: Franya Chandler**

	Time	Speaker	Title	Mark
1	10:15 ~ 10:30	Jie	James Watt	
2	10:30 ~ 10:45	Anthony	Father of microbiology	
3	10:45 ~ 11:00	Rita	Nikola Tesla life	
4	11:00 ~ 11:15	Ivan	Nikola Tesla's life and achievements	
5	11:15 ~ 11:30	Spencer	Wright Brothers Invent Airplane	
6	11:30 ~ 11:45	Brian	The life of Steve Jobs	
7	11:45 ~ 12:00	Jevons	How Steve Jobs changes the world?	

**S3: 12:45 ~ 14:45 AI and Its Applications – Chair: Jack**

	Time	Speaker	Title	Mark
1	12:45 ~ 13:00	Henry	How we use AI to help with our study	
2	13:00 ~ 13:15	Calvin	Colonizing Mars in the future	
3	13:15 ~ 13:30	Jason	Making friends with AI-how it will affect society (WITHDRAWN)	
4	13:30 ~ 13:45	Kevin	How virtual reality can be used in education	
5	13:45 ~ 14:00	Jack	How a robot think	
6	14:00 ~ 14:15	Franya Chandler	Making friends with AI-how it will affect society	
7	14:15 ~ 14:30	Nathan	Atomic Habits vs. Laziness and Procrastination	
8	14:30 ~ 14:45	Francis	Brain-Computer Interface(WITHDRAWN)	

**S4: 15:00 ~ 17:00 Engineers and their work – Chair: Alex/Daphne**

	Time	Speaker	Title	Mark
1	15:00 ~ 15:15	Hank	René? Descartes and Analytic geometry (WITHDRAWN)	
2	15:15 ~ 15:30	Alfa	Michael Faraday	
3	15:30 ~ 15:45	Jim	How Turing machine affects World War 2	
4	15:45 ~ 16:00	James	Jim Keller - The god of integrated circuits	
5	16:00 ~ 16:15	Shawn	How DC generator and DC motor affect daily life in the future	
6	16:15 ~ 16:30	Randy	The Nobel Prize in Taiwan	
7	16:30 ~ 16:45	Sam	Why MSI Successfully Occupy The Taiwan Market?***	
8	16:45 ~ 17:00	Leo	Modern scientists - Elon Musk	

**S5: 18:00 ~ 19:00 Scientists – Chair: Rita**

	Time	Speaker	Title	Mark
1	18:00 ~ 18:15	Ian	Thomas Alva Edison	
2	18:15 ~ 18:30	Thomas Huang	Edison invents the electric lights to change our life.	
3	18:30 ~ 18:45	Alex	How to concentrate on study	
4	18:45 ~ 19:00	Md Azaharuddin Ansari	Modification of Dynamic Lighting System to Meet Canadian Safety Standards	

## Abstracts

### ***FD 18:30 ~ 20:00 Selected Talks***

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#### ***Welcome, About the Conference***

Presenter: Jonathon David White (百小明)

Submission Type: Overview

The XTOP conference was first held in 2005 at Yuan Ze University with participation limited to graduate students and then continued continuously until 2010 with the sites alternating between National Central University, Yuan Ze University and Fu-Jen Catholic University. In 2010, a change in teaching and research priorities resulted in the conference being discontinued until 2019 when it was resurrected as an undergraduate teaching conference.

During the conference students will participate both in presenting and grading conference presentations. Each participant will provide a relative grade (grades will be later adjusted to absolute grades) for each presentation and is expected to ask 2 questions during the conference.

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#### ***Archimedes, the great scientist from bc***

Presenter: Duke-Weng Jun-Lin (翁竣麟)

Submission Type: Scientist

Archimedes, a great scientist who was active around 200 BC. His scope of research strategy includes Mathematics, Physics, Inventions and Astronomy. Although the time he was active is quite a long time ago, his research is still having a profound effect on us.

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#### ***IOT-based health monitoring system***

Presenter: Sphehile Mdlovu-Lou shi nong (婁詩農)

Submission Type: My research work

IOT-based health monitoring is the usage of smart sensing devices to monitor real life health of patients remotely. Doctors monitor patients without them having to go to the hospital. In this study, we will be proving that IOT enables a reduction in cost of health monitoring of patients. We will be showing the monitoring of the heart rate, pulse and temperature, using the LM 35 temperature sensor, and the MAX30102 pulse oximetry sensor using Arduino. Costs are reduced because patients will not have to travel to get checked. This also reduces the risk of death since patients are in constant monitoring, which means problems are detected sooner.

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#### ***Influence of Accelerometer Position and Algorithm on Evaluated Sleep Parameters***

Submission Type: My Research Work

Particularly in the elderly, sleep problems have a severe impact on fundamental living skills like memory, focus, and learning. The gold standard for measuring sleep in clinical studies is polysomnography (PSG), but free-living studies can't use it. For these investigations, accelerometers and sleep journals are frequently employed. This study looked at how two sleep detection algorithms—arm/ankle elevation (AE) and activity index (AI)—affected the determination of sleep characteristics. The findings demonstrated that although for AE the sensor can be placed wherever the person feels most comfortable, for AI it must be placed on the non-dominant arm. The average of the two algorithms' estimates of sleep time is relatively close to the value obtained from the sleep diary. These results have significant implications for the study of sleep in free-living environments.

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### ***Is this individual variability in the light dependence of melatonin suppression correlated with sleep disturbances?***

Presenter: Sweta Jha (陳姪壇)

Submission Type: My Research Work

Issues such as insomnia, narcolepsy, and excessive sleepiness during daylight hours are increasingly seen as our society spends more time indoors under artificial lighting. Many of these problems are due to misalignment or disturbance of an individual's circadian rhythm due to a malfunctioning of the individual's circadian clock.

Our research seeks to address whether individuals whose light sensitivity lies on the extremes are more prone to sleeping disorders than those whose response curve is near the norm. If our hypothesis is true, this suggests that the success or failure of BLT interventions is due to individual variability in the dependence of melatonin suppression on light intensity.

### ***Session S1 08:15 ~ 09:45: Great Scientists***

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#### ***Archimedes***

Presenter: Thomas-Wu jun wei (巫俊葳)

Submission Type: Scientist

Archimedes was a Greek mathematician, physicist, engineer, inventor, and astronomer who lived in Syracuse, Sicily, in the 3rd century BCE. He is widely considered to be one of the greatest mathematicians of all time and is known for his contributions to geometry, hydrostatics, and mechanics. Archimedes is best known for his principle of buoyancy, known as Archimedes' principle, which states that the buoyant force on an object submerged in a fluid is equal to the weight of the displaced fluid.

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#### ***Galileo Galilei***

Presenter: Daphne-Du Yi Hsin (杜奕妍)

Submission Type: Scientist

Throughout his life, thanks to the influence of his father, he considered mathematics to be the basis for influencing everything. Galileo developed the flight trajectory theory of the projectile. If Galileo didn't exist, later generations, including Newtons, may lack mathematical and physical concepts related to parabolas. Because he made first innovations in the study of kinematics through experimental and mathematical means. Stephen William Hawking considered Galileo contributed more than anyone else to the birth of modern science and is known as the father of modern science. As far as I concerned, we may know less about the mathematics and principles of parabola and kinematics if Galileo didn't exist.

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#### ***Galileo's contribution of modern experimental science***

Presenter: Kenny-Chen I Chang (陳奕璋)

Submission Type: Scientist

Although there have been no great political and military figures in Italy since ancient Rome, countless scientists and artists have emerged in modern times. Galileo was the most representative of these great men. He was born on February 15, 1564. He was not only a famous mathematician, physicist, and astronomer, but also a pioneer of the great scientific revolution. It is especially worth mentioning that Galileo invented the pendulum needle and the thermometer, made great contributions to mankind in science, and was one of the founders of modern experimental science.

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### **Edward Jenner and Vaccines**

Presenter: Pierre-Li yong xiao (李勇孝)

Submission Type: Scientist

Edward Jenner, an English physician and scientist, is widely recognized for his discovery of the smallpox vaccine. His work with cowpox in the late 18th century revolutionized medicine and has had a profound impact on public health throughout history. This breakthrough led to the widespread use of vaccination as a means of preventing the spread of infectious diseases, and paved the way for further advancements in the field of immunology. Jenner's discovery of vaccines has played a crucial role in shaping the field of medicine and public health, and has saved countless lives worldwide.

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### **Isaac Newton's Life**

Presenter: Rose-LEE,CHIA-HUI (李佳慧)

Submission Type: Scientist

There are six points that we will mainly talk about. First, childhood of Newton, second, adolescence of Newton, third, early adulthood of Newton, fourth, midlife of Newton, fifth, late adulthood of Newton, last, Bible and Aristotle effects on Newton. That's all the contents that we will talk about in our presentation.

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### **Stephen William Hawking**

Presenter: Angus-Lin Yu Chen (林祐丞)

Submission Type: Scientist

Stephen William Hawking is one of the most important scientists in modern times. He has made many contributions, including time, space, and universe, and he has made many theories. so that people can better understand these mysteries, but if but what would happen if he didn't exist.

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### **Stephen William Hawking-general relativity**

Presenter: Iran-Hong Chao Yuan (洪昭元)

Submission Type: Scientist

Hawking is a world-renowned and important scientist. Because of him, people will know the theory that black holes emit radiation. He is also the first to propose a cosmological theory explained by general relativity and quantum mechanics. He is a (FRSA) winner and has also won the Presidential Medal of Freedom, which is the highest civilian award awarded by the United States.

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## **Session S2 10:15 ~ 12:00: Engineering and Technology**

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### **James Watt**

Presenter: Jie-Yang Jie (楊捷)

Submission Type: Scientist

James Watt's laid an important foundation for the Industrial Revolution and was an important figure during the Industrial Revolution. Many factories used steam engines to manufacture products, which promoted the development of the industrial age. If James Watt didn't retrofit steam engine, the steam trains and steam ships may not invent. He retrofit steam engine, it was different from the original steam engine made by Thomas Newcomen. The transformation of the steam engine was an important contribution. James Watt's influence on the industrial revolution was very great, without his transformation, industrial revolution will not be so fast.



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### ***Father of microbiology***

Presenter: Anthony-Jian Hao Quan (簡皓全)

Submission Type: Scientist

Louis Pasteur is widely regarded as the father of microbiology due to his groundbreaking work in the field. We suggest that without Pasteur's passion for science and microbiology, human society would not have been able to develop as rapidly and safely as it has. We will explore the impact of Pasteur's discoveries on modern society. Through his research on bacteria and fermentation, Pasteur laid the foundation for numerous scientific advancements that have greatly benefited humanity, such as the development of vaccines against rabies and anthrax, and even the word "pasteurization" is derived from his name. Pasteur's contributions and his work has shaped the world we live in today.

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### ***Nikola Tesla life***

Presenter: Rita-Lin Hsin Hsiu (林昕秀)

Submission Type: Scientist

About the legendary life of Nikola Tesla, his introduction in designing the power supply system, and several great inventions. If we don't have Tesla we can't easily promote power supply system so easily. Because he built the first one of the AC power supply also fought the current war also won it. So we need him that we can realize the power supply quickly. In memory of him, the International Conference of Weights and Measures named the international unit of magnetic induction the Tesla. This can mention that he is important for the physics world.

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### ***Nikola Tesla's life and achievements***

Presenter: Ivan-Chiou Yen Wen (邱彥文)

Submission Type: Scientist

In this presentation, we are going to introduce about Nikola Tesla, an inventor, electrical engineer, and mechanical engineer, his many related patents and theoretical research work in electromagnetism are the cornerstone of modern wireless communication and modern radio, so in this presentation, I'll briefly talk about the life of Nikola Tesla and his affection to this world.

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### ***Wright Brothers Invent Airplane***

Presenter: Spencer-CHING-LUN TAI (戴敬倫)

Submission Type: Scientist

The Wright brothers' interest in aviation was sparked by the work of earlier pioneers such as Otto Lilienthal and Samuel Langley. They conducted extensive research and experimentation with kites and gliders before eventually developing their own engine-powered aircraft, the Wright Flyer, in 1903. The Wright brothers' achievement in flight revolutionized the world of transportation and marked the beginning of the aviation industry. They continued to innovate and improve their designs, and their contributions to aviation are still celebrated today. The reasons why inconvenience is showing below. Slow travel: Compared to airplanes, other forms of transportation are slower and take more time to cover long distances. Limited accessibility: Some remote locations may be inaccessible by other forms of transportation, making it difficult for people to travel there. Increased costs: The cost of traveling by other forms of transportation can sometimes be higher than air travel, especially if it involves multiple modes of transportation or if the journey is long and requires multiple stops. Risk of accidents: Other forms of transportation, such as ships and cars, can be more dangerous and have a higher risk of accidents than airplanes.

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### ***The life of Steve Jobs***

Presenter: Brian-YEH PO TING (葉柏廷)

Submission Type: Scientist

I want to talk about Jobs' life and what the world would be like without Steve Jobs. Steve Jobs is one of the most important scientists in the world. I think without him, there will be no best mobile phone in the world. iPhone will be used, and the world will become very miserable.

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### ***How Steve Jobs changes the world?***

Presenter: Jevons-Lee,Cheng-zhe (李承哲)

Submission Type: Scientist

Steve Jobs was a charismatic pioneer of the personal computer era. With Steve Wozniak, Jobs founded Apple Inc. in 1976 and transformed the company into a world leader in telecommunications. In 2007, the first iPhone was a technology innovation release. Steve Job invented iPhone and transformed the way of using mobile devices. It showed interaction in a new way and set the foundations for a Smartphone. iPhone was more than a phone. It was the computer that went everywhere and answered all with a button push to all the questions. The style and way of communication changed drastically for the best, and accessing information was a breeze

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### ***Session S3 12:45 ~ 14:45: AI and Its Application***

#### ***How we use AI to help with our study***

Presenter: Henry-TSUNG EN Lee (李宗恩)

Submission Type: Topic

Artificial intelligence has developed very rapidly recently, and now artificial intelligence can answer various questions in spoken language. Moreover, the scope of knowledge of artificial intelligence is very large, compared to the human brain. Perhaps in the future, artificial intelligence will become our main source of knowledge acquisition, and artificial intelligence is equivalent to a synthesis of all the books in the world. We don't need to find the right book first and then find the right chapter and slowly find what we want. To find the answer, as long as we think clearly about the question we want to ask, artificial intelligence can quickly help us find the answer and help us solve the confusion.

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#### ***Colonizing Mars in the future***

Presenter: Calvin-Li Yun sheng (李昀昇)

Submission Type: Topic

Currently, humans cannot live on Mars. To overcome the challenges, significant advancements in technology will be required to enable sustainable habitation on the planet, such as developing a closed-loop life support system, creating a radiation shielding system, and generating power and resources locally. Several organizations, including NASA and private companies such as SpaceX, are working on developing technologies and conducting research to enable human settlement on Mars.

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### ***Making friends with AI-how it will affect society***

Presenter: Jason-PENG-YUN-HAO (彭筠皓)

Submission Type: Topic

When the technology of artificial intelligence matures, artificial intelligence can start to communicate with people, and even become good friends with human beings, almost like real people. While technological advancement is great, you don't know if we can fully trust artificial intelligence, Short explanation of research (chatgpt, even alexa, siri...etc) Although they aren't really capable of friendship blah blah, we see people regularly interaction with them, when they are bored, lonely or out of curiosity.

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### ***How virtual reality can be used in education***

Presenter: Kevin-HSIEH, MING PENG (謝名芃)

Submission Type: Topic

From simple blackboards to now projectors and electronic whiteboards, teaching equipment used in classroom settings is constantly improving. However, the main principle behind those teaching methods have remained the same for centuries: a teacher, a blackboard or screen, and dozens or even hundreds of students. As technology continues to evolve, we see great potential in a particular technology that can transform the face of teaching as we know it: Virtual Reality Technology. This idea removes the limitations of traditional classrooms, and gives students the opportunity to essentially go on time and cost effective field trips. In addition, it increases students' enthusiasm for learning as they are able to interact with the course material in a way that they can't with textbooks and blackboards. While there is still much to do to include VR technology into our curriculums, it seems to be an idea that will eventually be realized in the years to come.

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### ***How a robot think***

Presenter: Jack-chen zheng kai (陳政楷)

Submission Type: Topic

Nowadays, robots have become more and more common in our daily life, they talk to us, help us with our work or even replacing us. How they response to us? how they think? How they know which statement they should use to give us an answer precisely, will it become smarter if it keep thinking? We will reveal it with some of the newest technology.

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### ***Making friends with AI-how it will affect society***

Presenter: Franya Chandler-chén fēinà (陳妃娜)

Submission Type: Topic

The latest advancements of Artificial Intelligence Technology have been incredible, and seem to have a promising future in many aspects of our society. Even in today's world, we see assistants like Siri, Alexa, Google Assistant and the recent ChatGPT being a part of the daily lives of many. This poses the question: Will we be friends with AI in the future? The short answer is yes. In coming years we will see huge improvements in communication between AI and human beings that might replicate real friendships. This can serve to help people going through lonely times, or struggling with disorders that affect their social life. However, it is likely that the friendship will be one-sided, will come with privacy issues, and might even lead to more social isolation. Regardless, hyper-advanced AI is inevitable and, whether positive or negative, humans and AI will form friendships, or some version of it.

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## ***Atomic Habits vs. Laziness and Procrastination***

Presenter: Nathan-wu guan sheng (吳冠勝)

Submission Type: Topic

Surely, we all have experienced that moment where we have something that is very important to do, but wait till the deadline is near to actually start making progress. And in the end, in midst of panic, underperform due to time constraint. How do we exactly overcome these problems then? The answer is somewhere in between managing our time-management, behaviour, method, these small little things, or to put it short, atomic habits.

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## ***Brain-Computer Interface***

Presenter: Francis-LI CHIH-CHIA (李志家)

Submission Type: Topic

I will talking about recent year Brain-Computer Interface development, now Brain-Computer Interface research difficulty and why people want to have Brain-computer Interface, after I will talk society problem and if Brain-Computer Interface become normal tool on people.

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## ***Session S4 15:00 ~ 17:00 Engineers and their work***

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### ***René? Descartes and Analytic geometry***

Presenter: Hank-Jing-Yuan Ku (古景元)

Submission Type: Scientist

René Descartes was a French philosopher, mathematician, and scientist who lived in the 17th century. He is widely regarded as the father of modern philosophy due to his groundbreaking work in the field of metaphysics and epistemology. Descartes' most famous philosophical dictum, "Cogito, ergo sum" ("I think, therefore I am"), is still widely studied and debated today. Descartes was also an accomplished mathematician, and he is credited with inventing the Cartesian coordinate system, which revolutionized mathematics and paved the way for the development of calculus. He also made important contributions to the fields of optics and physics, laying the groundwork for the modern scientific method. Despite his many achievements, Descartes' ideas were often controversial in his own time, and he faced criticism from both religious and scientific communities. However, his work had a profound impact on the development of modern philosophy and science, and he remains one of the most influential thinkers in Western intellectual history.

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### ***Michael Faraday***

Presenter: Alfa-Hsieh Min-Ching (謝旻璟)

Submission Type: Scientist

Michael Faraday was a British scientist born in 1791 who made significant contributions to electromagnetism and electrochemistry. Despite receiving little formal education, he had a natural curiosity for science and a talent for experimentation. Faraday's work on electromagnetism led to the development of the electric motor, the generator, and many other devices that are still used today. He also discovered the laws of electrolysis, which led to the development of the battery. Faraday was a prolific writer and lecturer, and his clear and simple explanations of complex scientific concepts made him one of the greatest experimentalists of all time. His legacy can be seen in the many devices and technologies that are based on his discoveries, as well as in the countless scientists and engineers who have been inspired by his example.

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### ***How Turing machine affects World War 2***

Presenter: Jim-LIN-CHE-CHUN (林哲均)

Submission Type: Scientist

Turing machine was invented in 1936, if there were no Turing machines, Germans would have won World War 2, because it helped British to crash the Enigma encryption system of the German army. According to the statistics, millions of people survived because of Turing machine. But if what would happen if it doesn't exist, would more people died?

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### ***Jim Keller-The god of integrated circuits***

Presenter: James-Chen Xin Wei (陳昕煒)

Submission Type: Scientist

Jim Keller, an American microprocessor engineer. Best known for his contributions on Apple A series chips and AMD Zen series CPU. Also created Tesla's automatic driving processor. He has been working for over 30 years. Leading several generations of different processors' designs and researching development. So called "The God of The Chips". He is now working with AI chip company Tenstorrent and is going to invent the chips that have ability to processing artificial intelligence.

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### ***How DC generator and DC motor affect daily life in the future***

Presenter: Shawn-Xiangbinsun (孫翔彬)

Submission Type: Scientist

Although Edison is known as the father of direct current and Tesla is considered to be the person who discovered alternating current, they have discovered it long before them, but in fact, they did not really enter the era of electricity in their era, until Grandpa Invention of DC generators and DC motors, without the invention of Grandpa, machinery would not be able to completely replace manpower, and many current home appliances would no longer exist.

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### ***The Nobel Prize in Taiwan***

Presenter: Randy-Lin Po Yu (林伯諭)

Submission Type: Scientist

How a Taiwanese scientist brought the Nobel Prize back to Taiwan? Yuan Tseh Lee do a lots for not only the science history of Taiwan but the world. Yuan Tseh Lee engaged in ion-molecule reactions and the dynamics of molecular scattering and crossed molecular beam studies of reaction dynamics, named as Mozart in Physic-Chemistry, he won the first Nobel Prize in Taiwan, while he backed to Taiwan from his scientist career, he still engaged in Taiwan's education. Due to his distribution, it tells us everyone has their own particular position in the world no matter where he or she burned in.

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### ***People who founded ASUS, and their contribution***

Presenter: Sam-Li Shiang Yu (李祥宇)

Submission Type: Scientist

They launched smartphones and laptops. Then, they launched the first generation of ultra-extreme notebooks and the first gaming laptop. Now, they have also launched their own mobile phone brand – zenfone. According to iSuppli statistics, ASUS ranks first in the world in ODM. I think they bring the best contribution and it will reach a new milestone for the technology industry in Taiwan.

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### **Modern scientists - Elon Musk**

Presenter: Leo-Zhang li-liang (張立樑)

Submission Type: Scientist

Elon Musk, founder of Tesla, SpaceX. Cofounder of openAI. Making a lot of effort on technology innovation but also has made controversial statements on politics and technology. The openAI, ChatGPT, for instance. Is the milestone of human developing, but made people think of the movie - Terminator at the same time. Elon posted his opinion on twitter, which mentioned that openAI might be the both side knife to human beings. But it still worthy to compliment.

### **Session S5 18:00 ~ 19:15 Scientists**

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#### **Thomas Alva Edison**

Presenter: Ian-Huang Hai Xiang (黃海翔)

Submission Type: Scientist

Thomas Alva Edison was an American inventor and businessman. He developed many devices in fields such as electric power generation, mass communication, sound recording, and motion pictures. These inventions, which include the phonograph, the motion picture camera, and early versions of the electric light bulb, have had a widespread impact on the modern industrialized world. He was one of the first inventors to apply the principles of organized science and teamwork to the process of invention, working with many researchers and employees. Without Thomas Alva Edison, I think the modern industrialized world will not advance the way it has advanced in our today's society. And there will have many people be effected, such as mining industry, media industry and most part of science industry. Affecting us most in our daily life i think is the part of electric industry, such as generator, it really makes the way to get electricity easily. So I think whether Thomas Alva Eidson exist or not is very influential for the whole society.

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#### **Edison invents the electric lights to change our life**

Presenter: Thomas Huang-Huang Tzu Hsuan (黃子軒)

Submission Type: Scientist

Thomas Edison (1847-1931) was an American inventor and businessman who developed many devices that greatly influenced life around the world, including practical electric light bulb. Edison invents the electric lights to change our life. If electric lights were to disappear, the world would be thrown into darkness at night. Here are some potential consequences: 1. Safety concerns: Without electric lights, it would be much harder to navigate the streets and avoid hazards like potholes, rocks, or even wild animals. People would need to rely on other sources of light, such as candles or lanterns, which are not as bright or reliable as electric lights. 2. Lifestyle changes: People would need to adjust their lifestyles to cope with the lack of electric lighting. They would need to go to bed earlier, wake up earlier, and spend more time indoors during the dark hours. Activities such as sports, entertainment, and socializing would need to be adjusted to fit the new schedule.

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### ***How to concentrate on study***

Presenter: Alex-Chu, Hsuan-Cheng (朱軒正)

Submission Type: Topic

Learning is something that everyone will face. Your future development depends on the results of learning, but in the process of it, we are easily distracted by external factors, and sometimes we cannot concentrate because we are concerned about other things. In this paper, we show external distractions can be mitigated by listening to music during studying. According to research, Perhaps one of the most compelling reasons to listen to music during a study session is because music is proven to help improve cognitive performance.

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### ***Modification of Dynamic Lighting System to Meet Canadian Safety Standards***

Presenter: Md Azaharuddin Ansari (安里)

Submission Type: My Research Work

Quality of life can be improved in people living with dementia (PWD) by reducing the sleep disturbance. Studies show that the 24-hour light cycles are a key trigger affecting sleep. We developed a dynamic lighting system to generate uniform white light using 6 different colored LEDs that varies over 24 hours. The intensity at wavelength ( $\lambda$ )~480 nm maximizes at noon, reduces during the evening hours and is minimal at night causing a person asleep. This system was redesigned to meet Canadian and North American safety standards.

## Talk <Session>-<Talk> Evaluation

Title: <Title>

Presenter: <Name-EN> ID: <ID>

Comments? ☐ YES ☐ NO

Teacher to fill in below this line (Check YES box above if want comments, otherwise check NO)

§	Item	Actual Points										Max Points
		0.5 (1)	1.5 (3)	2.5 (5)	3.5 (7)	4.5 (9)						
WRT	Abstract											/5
WRT	View Graphs (clarity, beauty)											/5
CP	Content (Original, Appropriate)											/5
CP	Presentation Flow & Logic											/5
Time	[11 12 min]*											/10
GP	Grammar & Pronunciation											/10
FC	No Stumbling											/5
	Good Sentence Flow											
	Can be Heard Clearly											
	Eye Contact (not Reading)											
ADV	No Apologizing/Excuses											/5
	Natural Body Movement											
	Erect Posture (not slouched)											
	Friendly Tone (not monotone)											
	Avoid Fillers/Verbal Ticks											
	Reads the Audience											
-	Late Submission											-10%
<b>TOTAL:</b>												<b>/50</b>

\*Loss of 1 point for each 15s outside of range

§	Comments

WRT: Written English(10); CP:Logical Organization(10); Time(10); GP/FC/ADV: Oral English(20)



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