

XTOP – 2025

Conference Proceedings



Date: Saturday May 3, 08:30 AM

Venue: Building 7 R70101, 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

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.

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.

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 Awards*	Teacher's Choice Awards*
Gold		
Silver		
Bronze		

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

Session Chairs

Session	Session Chair	YZU Student ID
S1	Duv Reverie	1123730
S2	Dana Jackson	1123738
S3	Arthur	1123713
S4	Lestron Simpson	1123739
S5	Sabrina	1123725

Schedule at a Glance

Time	Activity
08:30 ~ 08:45	Conference Registration: Sign In
08:45 ~ 09:45	Session 1
09:45 ~ 10:00	Coffee Break
10:00 ~ 11:00	Session 2
11:00 ~ 11:15	Coffee Break
11:15 ~ 12:15	Session 3
12:15 ~ 13:15	Lunch (Courtesy of the YZU International Program)
13:15 ~ 14:15	Session 4
14:15 ~ 14:30	Coffee Break
14:30 ~ 15:15	Session 5
15:15 ~ 15:30	Closing Remarks & Award Ceremony

Talks

S1: 08:45~ 09:45 Chair: Duv Reverie

	Time	Speaker	Title	Mark
1	8:45 ~ 9:00	Jon	Welcome, About the Conference	0→ 100
2	9:00 ~ 9:15	Arthur	The Relation Between Sleep Quality And Academic Performance Amongst YZU Students	
3	9:15 ~ 9:30	Aadesh	Music Moves: How Exercise Shapes Our Soundtrack	
4	9:30 ~ 9:45	Donna	Unveiling Smartphone Preferences: Trends and Insights in Taiwan	

S2: 10:00 ~ 11:00 Chair: Dana Jackson

	Time	Speaker	Title	Mark
1	10:00 ~ 10:15	Billy Chen	The Relation Between Sleep Quality	
2	10:15 ~ 10:30	Johnny	Does Exercise Habit Influence Music Preferences: The Relationsh	
3	10:30 ~ 10:45	Mark	Sleeping quality	
4	10:45 ~ 11:00	Robert	The Relationship Between Sleep Quality and Students' Academic Performance	

S3: 11:15 ~ 12:15 Chair: Arthur

	Time	Speaker	Title	Mark
1	11:15 ~ 11:30	Duv Reverie	The Relation Between Sleep Quality And Academic Performance Amongst YZU Students	
2	11:30 ~ 11:45	Sabrina	Move to the Beat: Can Music Make Exercise a Habit?	
3	11:45 ~ 12:00	Lestron Simpson	The Impact of Smartphone Software on Student Preferences at Yuanze University	
4	12:00 ~ 12:15	Jimmy	"Do Longer Nights Mean Better Grades?"	

S4: 13:15 ~ 14:15 Chair: Lestron Simpson

	Time	Speaker	Title	Mark
1	13:15 ~ 13:30	Dana Jackson	Understanding Cigarette Dependency as a Stress Response: Investigating Student Smoking Behaviors Before, During and After Midterm Examinations	
2	13:30 ~ 13:45	Javay	Musical Intervention in Athletic Performance: A Study on the Effects of Different Music Genres on Various Types of Exercise	
3	13:45 ~ 14:00	Ray	The Relation Between Sleep Quality And Academic Performance Amongst YZU Students	
4	14:00 ~ 14:15	Kevin	Behaviors Before, During, and After Midterm Examinations	

S5: 14:30 ~ 15:15 Chair: Sabrina

	Time	Speaker	Title	Mark
1	14:30 ~ 14:45	Sweta	Individual Variations in Melatonin Under Increasing Evening Melanopic Illuminance	
2	14:45 ~ 15:00	Md Azaharuddin Ansari	Generation of Metameric Spectra Using Practical LEDs	
3	15:00 ~ 15:15	Raheem Qaiser	Detection of Bed Entry and Exit Using Infrared Sensor Array Camera and Infrared Motion Sensor	

Abstracts

Session S1 08:45 ~ 09:45

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.

The Relation Between Sleep Quality And Academic Performance Amongst YZU Students

Presenter: Arthur (陳鴻彥)

Hypothesis: Higher sleep quality, indicated by lower ISI scores, is associated with significantly higher academic performance among Yuan Ze University students.

Abstract: The relationship between sleep quality and academic performance among undergraduate students at Yuan Ze University. Sleep quality was assessed using the Insomnia Severity Index (ISI), and academic performance was measured by Grade Point Average (GPA). Data were collected through anonymous surveys and statistically analyzed. A significant negative correlation was found between ISI scores and GPA ($r = -0.94$, $p = 0.000065$), indicating that lower sleep quality is associated with decreased academic performance. These findings underscore the importance of sleep quality in educational achievement and support the integration of sleep education into academic support initiatives.

Music Moves: How Exercise Shapes Our Soundtrack

Presenter: Aadesh (阿迪斯)

Hypothesis: University students who engage in regular exercise show a preference for high-energy music genres.

Abstract: This study explores the relationship between exercise habits and music preferences among university students, focusing on how physical activity influences musical choices. A survey at Yuan Ze University gathered data on students' music listening habits during exercise. The findings showed that 65% of participants listen to music while exercising, with pop and electronic dance music (EDM) as the most favored genres. Exercise frequency significantly influenced music selections, with 70% of respondents noting that the tempo of their workout music affects exercise intensity. These results underscore the importance of music in enhancing the exercise experience. Tailored playlists can improve physical performance and enjoyment, providing insights for fitness enthusiasts and marketers.

Unveiling Smartphone Preferences: Trends and Insights in Taiwan

Presenter: Donna (蕭若庭)

Hypothesis: Consumers in Taiwan exhibit a strong preference for Apple smartphones due to brand loyalty, ecosystem integration, and the perceived superiority of software and camera features. Economic factors and longer software support also contribute to users holding onto iPhones for extended periods, reinforcing Apple's dominance in the market.

Abstract: This study investigates smartphone preferences in Taiwan, analyzing brand choices, purchasing habits, and key features valued by users. Based on survey data from 49 participants aged 16 to 50, results reveal that 75% favor Apple devices, with brand loyalty and software quality playing a major role in their choices. Most respondents replace their phones every three years or more, demonstrating a preference for longevity and premium devices. Additionally, software and camera quality were identified as the most important factors influencing smartphone selection. These findings highlight the significant role of cultural and technological factors in shaping consumer behavior in Taiwan's smartphone market

Session S2 10:00 ~ 11:00

The Relation Between Sleep Quality

Presenter: Billy Chen (陳顯元)

Hypothesis: Students who benefit from quality sleep, as measured by ISI scores, will demonstrate superior academic performance compared to those with poorer sleep quality.

Abstract: This study examines the relationship between sleep quality and academic performance among undergraduate students at Yuan Ze University. Using the Insomnia Severity Index (ISI) as a sleep quality metric, anonymous survey data revealed a strong negative correlation between ISI scores and Grade Point Average (GPA) ($r = -0.94$, $p = 0.000065$). Students with lower ISI scores, indicating better sleep quality, tended to achieve higher GPAs, while those with moderate to severe insomnia had lower academic performance. These findings underscore the crucial role of sleep quality in academic success and highlight the need for interventions promoting better sleep hygiene. Future research should explore causal mechanisms and assess the effectiveness of sleep improvement programs in enhancing academic outcomes.

Does Exercise Habit Influence Music Preferences: The Relationsh

Presenter: Johnny (蔣博丞)

Hypothesis: Do exercise habits influence music preferences?

Abstract: The hypothesis explores the relationship between exercise and musical taste. Research suggests that who engage in regular exercise tend to prefer energetic music genres such as R&B, hip-hop, EDM, and rock. Additionally, exercise more harder may influence music selection, with faster beats preferred during high-intensity exercises. If we can Understand this connection, it can help in designing personalized workout playlists, improving motivation and overall exercise experience.

Sleeping quality

Presenter: Mark (王維林)

Hypothesis: To think that does less or bad sleeping will affect students' grade

Abstract: To be submitted

The Relationship Between Sleep Quality and Students' Academic Performance

Presenter: Robert (許紘睿)

Hypothesis: Assuming that sleep quality is related to academic performance

Abstract: Sleep quality plays a crucial role in students' cognitive functions such as memory, attention, and problem-solving. Poor sleep habits often lead to fatigue, stress, and reduced academic performance. In contrast, students who maintain regular, high-quality sleep tend to show better focus, motivation, and academic achievement, emphasizing the value of good sleep hygiene.

Session S3 11:15 ~ 12:15

The Relation Between Sleep Quality And Academic Performance Amongst YZU Students

Presenter: Duv Reverie (李家慶)

Hypothesis: Students with better sleep quality, as reflected by lower ISI scores, are expected to achieve higher academic performance than those with poorer sleep quality.

Abstract: Sleep quality and academic performance was examined among undergraduate students at Yuan Ze University using the Insomnia Severity Index (ISI) as a sleep quality metric. Anonymous survey results revealed a strong negative correlation between ISI scores and Grade Point Average (GPA) ($r = -0.94$, $p = 0.000065$). Students with better sleep quality, reflected by lower ISI scores, tended to have higher GPAs, while those experiencing moderate to severe insomnia had lower academic performance. These findings highlight the critical role of sleep in student success and suggest the importance of implementing sleep hygiene education within academic support systems. Future work should explore causality and assess interventions aimed at improving sleep to enhance academic outcomes.

Move to the Beat: Can Music Make Exercise a Habit?

Presenter: Sabrina (胡婷宇)

Hypothesis: Music can help people develop a regular exercise habit by boosting motivation and enjoyment.

Abstract: Our previous study found that exercise habits can affect music preferences. This made me wonder: Can music help people build a regular exercise habit? In this presentation, I will explore how music can make workouts more consistent and if listening to favorite songs can boost motivation. I will also discuss how to choose the right music for different types of exercise and how music preferences shape workout experiences. By looking at this idea from a different angle, I hope to show that music can play a key role in helping people stick to exercise and give useful tips for students and fitness lovers.

The Impact of Smartphone Software on Student Preferences at Yuanze University

Presenter: Lestron Simpson (沈松禾)

Hypothesis: Software has a massive impact on the influence of buying a new smart phone

Abstract: This study looks at smartphone preferences in Taiwan, including brand choices, buying habits, and the features people care about most. A survey of 49 participants aged 16 to 50 found that 75% prefer Apple devices, mainly due to brand loyalty and software quality. Most people upgrade their phones every three years or more, showing a preference for durable, high-end models. The top factors influencing their choices are software performance and camera quality. Overall, the findings highlight how cultural and technological factors shape consumer behavior in Taiwan's smartphone market.

"Do Longer Nights Mean Better Grades?"

Presenter: Jimmy (劉峻宏)

Hypothesis: Students who sleep longer on average will have higher academic performance than those who sleep less.

Abstract: This study looks into whether students who sleep more tend to get better grades. While a lot of research talks about sleep quality, I want to focus on sleep duration - how many hours students actually sleep each night - and see if that connects to their GPA. The main idea is that getting more sleep might help students perform better academically. If that's true, it could show how important healthy sleep habits are for doing well in school.

Session S4 13:15 ~ 14:15

Understanding Cigarette Dependency as a Stress Response: Investigating Student Smoking Behaviors Before, During and After Midterm Examinations

Presenter: Dana Jackson (安黛娜)

Hypothesis: The frequency of cigarette consumption among YZU students would increase during mid-term examinations due to elevated stress levels.

Abstract: This research aims to observe the existence of change in Yuan Ze University (YZU) students' cigarette consumption during exams, notably one of the most stressful periods for students. It was hypothesized that the frequency of cigarette consumption among YZU students would increase during mid-term examinations due to elevated stress levels. Software tools such as Google Sheets and Microsoft Excel were used to gather, then analyze the data required for this research. A batch of 40 students participated, where 28 identified as cigarette smokers. This data was then displayed using descriptive statistics to identify patterns between stress levels and smoking frequency. Upon review, the overall results suggested that most participants increased cigarette usage during mid-term exams period. By highlighting this issue and its associated triggers, contributions for better stress management strategies can be made. YZU can foster an environment where students feel empowered to handle stress without over-reliance on cigarettes.

Musical Intervention in Athletic Performance: A Study on the Effects of Different Music Genres on Various Types of Exercise

Presenter: Javay (葉佳瑋)

Hypothesis: most people listen to English pop song when they do sport

Abstract: This study investigates the influence of different music genres on athletic performance across various types of physical activities. By analyzing participant responses and performance metrics under different musical conditions, the research aims to determine how tempo, rhythm, and genre can enhance or hinder physical output. The findings may contribute to optimizing training routines and improving athlete motivation through tailored musical interventions.

The Relation Between Sleep Quality And Academic Performance Amongst YZU Students

Presenter: Ray (王睿帆)

Hypothesis: Students who report better sleep quality, as measured by lower Insomnia Severity Index (ISI) scores, will have higher academic performance (GPA) compared to those with poorer sleep quality.

Abstract: the relationship between sleep quality and academic performance among Yuan Ze University students. Using the Insomnia Severity Index (ISI), data from anonymous surveys revealed a strong negative correlation between ISI scores and GPA ($r = -0.94$, $p = 0.000065$). Students with better sleep quality tended to achieve higher GPAs, while those with poor sleep quality experienced lower academic performance.

Behaviors Before, During, and After Midterm Examinations

Presenter: Kevin (簡語辰)

Hypothesis: Students' cigarette consumption increases during exams due to stress and decreases afterward.

Abstract: This study examines cigarette consumption patterns among university students before, during, and after midterm examinations, exploring its role as a stress-coping mechanism. A survey was conducted among 40 students at Yuan Ze University, assessing smoking frequency and perceived stress relief. Results indicate that cigarette intake increases significantly during exam periods due to heightened stress levels and decreases afterward. While some students report temporary relief from smoking, others remain uncertain about its effectiveness. The study highlights the need for universities to provide healthier stress management alternatives, such as counseling and mindfulness programs, to reduce dependency on cigarettes for stress relief.

Session S5 14:30 ~ 15:15

Individual Variations in Melatonin Under Increasing Evening Melanopic Illuminance

Presenter: Sweta (陳姪壇)

Hypothesis: We hypothesize that exposure to increasing levels of evening light will induce distinct, quantifiable patterns in salivary melatonin secretion—manifesting as flat, linear, or quadratic response curves—and that these patterns will vary significantly among individuals based on inherent differences in light sensitivity and circadian regulation.

Abstract: Melatonin is a hormone used by the body to regulate circadian rhythm (i.e. sleep-wake cycle). Light is one factor that influences plasma melatonin. Significant variation is found between individuals. This work investigates these variations. Participants (aged 19-54 years) were exposed to five different light levels of increasing light intensity from 6 to 10 pm. Saliva was collected after each hour. Melatonin concentration was determined using enzyme-linked immunosorbent assay (ELISA). Melatonin responses as a function of light intensity and time were found to fall into one of five categories: flat, linear (increase or decrease), quadratic (upward or downward).

Generation of Metameric Spectra Using Practical LEDs

Presenter: Md Azaharuddin Ansari (安里)

Hypothesis:

Abstract: Metameric spectra, which involve different spectral power distributions (SPD) that produce the same color perception, offer a novel way to influence non-visual photoreceptors and control melatonin secretion without altering perceived color. Using four LEDs, we demonstrate the creation of a broad range of white light metameric spectra. These spectra allow for fine-tuning light to enhance user comfort by effectively stimulating non-visual photoreceptors. This approach maintains consistent color perception while optimizing melatonin regulation, providing a versatile solution for adjusting lighting to support well-being.

Detection of Bed Entry and Exit Using Infrared Sensor Array Camera and Infrared Motion Sensor

Presenter: Raheem Qaiser (古瑞奇)

Hypothesis: This study hypothesizes that a system using an infrared sensor array camera and a motion sensor can detect bed occupancy status (present, leaving, entering, not in bed) with high reliability and minimal delay, while maintaining privacy and reducing costs compared to conventional monitoring solutions.

Abstract: People with dementia often require nighttime monitoring, as caregivers may not always be vigilant. We developed a system utilizing an Infrared sensor array camera and motion sensor to detect whether a person is in bed, out of the bed or leaving the bed. This system preserves privacy, is cost-effective, and operates unobtrusively above the bed, continuously monitoring without disturbing the individual. It provides a reliable solution for caregivers to be informed about bed-exit events, improving patient safety during the night.

XTOP-2025 PARTICIPANT LIST (Bold for Conference Chairs)

1102908	Mark	WangaWeiLin	王濰林						
1103710	Robert	HSU, HUNG-JUI	許紘睿						
1113729		LI, I-SHAO	黎奕劭						
1113758		WANG, CHENG-XIANG	王承翔						
1123702	Javay	Yeh, Jia-Wei	葉佳瑋						
1123708	Kevin	Jian Yu Chen	簡語辰						
1123710	Derek	WU, CHENG-LIANG	吳丞亮						
1123711	Johnny	po-cheng-chiang	蔣博丞						
1123713	Arthur	Chen-Hong-Yan	陳鴻彥						
1123715	Ray	RuiFan- Wang	王睿帆						
1123716	Billy Chen	Chen HaoYuan	陳顯元						
1123718	Donna	HSIAOJOTING	蕭若庭						
1123722	Jimmy	LIU, JUN-HONG	劉峻宏						
1123725	Sabrina	Ting-Yu Hu	胡婷宇						
1123730	Duv Reverie	Lee, Jia Qing	李家慶						
1123738			安黛娜						
1123739									
1123740	Aadesh	Ādī sī	阿迪斯						
1105613	Md Azaharuddin Ansari		安里						
1106050	Raheem Qaiser		古瑞奇						
1115609	Sweta Jha		陳姪壇						