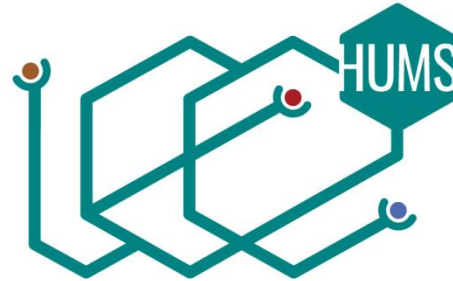
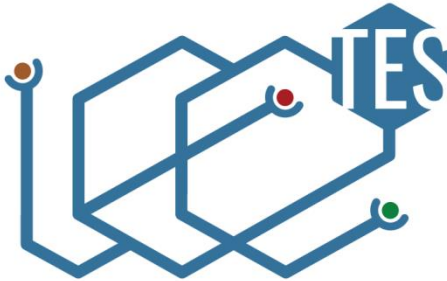




UNIVERSITAS  
KRISTEN  
MARANATHA



1<sup>ST</sup> INTERNATIONAL CONFERENCE ON EMERGING ISSUES  
IN TECHNOLOGY, ENGINEERING AND SCIENCE

&

1<sup>ST</sup> INTERNATIONAL CONFERENCE ON EMERGING ISSUES  
IN HUMANITY STUDIES AND SOCIAL SCIENCE

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**1-2 JULY 2021**

VIRTUAL CONFERENCE

Published by:



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## Message from the Rector



Honorable Keynote Speaker, Mr. Ignasius Jonan, former Minister of the Energy and Mineral Resources, and previously Minister of the Transportation Ministry of the Republic of Indonesia, we are greatly honored to have you with us this morning.

Distinguished keynote speakers, Prof. Ahmad M. Ramli (represented by Ikhsan Baidirus, S.H., LLM, Director of Post, General Directorate of Post and Information Technology, Ministry of Communication and Information Technology), Prof. John Silke, Dr. Ferry Sandra, Prof. Takayuki Arai, Prof. Young Ho Kim, Prof. Susy Tjahjani, Prof. Pim Martens, Dr. Dwinita Larasati, Prof. Chien-Hsu Chen, Prof. Wilson Bangun and Prof. Marcellia Susan, as well as all participants in the international conferences at Maranatha University.

A very good morning and best wishes to you all, and good evening to our colleagues in the US. Greetings and a warm welcome to Maranatha Christian University (MCU), Bandung, Indonesia.

I am delighted to be here with you today for the opening of the first MCU international conferences. These are: (i) The International Conference on Emerging Issues in Technology, Engineering, and Science, and (ii) The International Conference on Emerging Issues in Humanity Studies and Social Sciences, with the themes of: Digital Ecosystems for Sustainable Health and Community Development towards an Intelligent Society, and Innovations for Sustainable Community Development - Research and Practices, respectively.

We thank the many participants from countries across the different continents: the USA, the UK, the Netherlands, Norway, Taiwan, Japan, Korea, Thailand, Singapore, Malaysia, India, Australia, and New Zealand.

These first international conferences will serve as a platform to enable speakers and participants to share their research results, drawn from up-to-date research work, to initiate and strengthen further collaboration.

Without further ado, I would like to thank all the participants who have joined us for these international conferences. Again, my sincere hope is that what we accomplish today will be beneficial towards establishing collaboration among all the participants of these conferences.

I hereby declare the first international conferences at MCU in 2021 officially open.

May God bless you all. Thank you.

Prof. Ir. Sri Widiyantoro, MSc., PhD., IPU.

Rector of Maranatha Christian University



## Message from General Chair



On behalf of the committee members, it is a great pleasure to welcome you all to our first two international conferences: Emerging Issues in Technology, Engineering, and Science (ICE-TES) and, Emerging Issues in Humanity Studies and Social Sciences (ICE-HUMS).

ICE-TES and ICE-HUMS are twin events which serve our passion in balancing technology and humanity issues in the world of science and share the core values of our university: Integrity, Care & Excellence (ICE).

This year's theme for both conferences focus on the United Nations' Sustainable Development Goals (SGD), which emphasize the following aspects: ICE-TES (Digital Ecosystem for Sustainable Health & Community Development: Towards the Intelligent Society) and ICE-HUMS (Innovations for Sustainable Community Development: Research and Practices). We believe research and initiatives that has pragmatic and multidisciplinary/interdisciplinary approaches allows us to unravel fundamental problems and answer related questions regarding sustainable development.

The logistics of both of the First ICE-TES and ICE-HUMS 2021 conferences consist of two general and five-scientific keynote speakers. Special tracks are designed in each conference which cover recent developments in: ICE-TES (technologies, engineering, medical, and dentistry), ICE-HUMS (psychology, languages & cultures, economics, arts & design, and laws). The ICE-TES tracks received 82 submissions and 52 accepted full papers, involving authors from five countries, and corresponding to an acceptance rate of 63.4%. At the same time, the ICE-HUMS has received 130 submissions and accepted 76 full papers, involving authors from four countries, corresponding to an acceptance rate of 58.4%. All submitted papers were peer-reviewed on the basis of their significance, state-of-the-art contributions, and technical qualities.

Since we are still in the midst of COVID-19 pandemic, the conference has been organized virtually. The organizing committee has been working intensively to ensure that the scientific sessions will be valuable and engaging for all presenters and attendees. The parallel session format is a mix of pre-recorded and synchronous engagement through in-person live videos and question and answer sessions.

We would like to express our sincere appreciation to all the keynote speakers, committee members and reviewers for their dedication. Last, but certainly not least, we would like to offer many thanks to all authors who submitted their papers and all participants who registered to join this conference. We believe that ICE-TES and ICE-HUMS 2021 will be an inspiring academic occasion and will become a great platform for many ideas as well as research initiatives in the scientific community. Have an inspiring conference!

Dr. Hapnes Toba, M.Sc., General Chair of ICE-TES and ICE-HUMS 2021

Dr. Wahjoe Widowati, M.Si., General Co-chair of ICE-TES 2021

Joni, Ph.D., Ak., CA., CPSAK., General Co-chair of ICE-HUMS 2021



1st INTERNATIONAL CONFERENCE ON EMERGING ISSUES  
IN TECHNOLOGY, ENGINEERING AND SCIENCE  
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Dr. Emmanuel Jean-Francois, Ohio University, United States

Dr. Ratnadewi, S.T., M.T., Maranatha Christian University, Indonesia



## Virtual Conference Instructions

### General Information

ICETES-ICEHUM 2021 is a virtual conference which uses konfrenzi as its platform. There will be a co-host, a Session Chair, presenters, and guests for each session. The co-host and the Session Chair will be the persons in charge of facilitating the use of technology and coordinating the session and manage the Q&A respectively.

### Session instructions

#### 1. Beginning of the Session

- The Session Chair will introduce the presenter and then the technical assistant (or student) will play the video recording that the presenter has submitted. It will be followed by live Q&A.
- The duration of all presentation types is as follow:
  - Keynote speech: (20 minutes).
  - Recorded presentation (video) = max. 10 minutes per session.
  - Live Q&A = max. 5 minutes.
  - For opening and closing ceremonies, both ICE-TES and ICEHUMS participants can use the link below:

#### INTERNATIONAL CONFERENCE ON EMERGING ISSUES – ICE HUMS

Time: This is a recurring meeting Meet anytime

Join Zoom Meeting

<http://gg.gg/ICEHUMS>

Meeting ID: 858 132 1255

Passcode: ICE



## 2. Prior to the session

- The co-host will prepare the designated Go To Webinar session (10 minutes before the Session) and begin recording (2 minutes before the Session).
- The Session Chair introduces the session (1 minute before the Session).
- The participants of ICE-TES and ICE-HUMS can use the links below to access each event separately, except for the opening and closing ceremonies (we use ICE-HUMS link only).

### INTERNATIONAL CONFERENCE ON EMERGING ISSUES – ICE HUMS

Time: This is a recurring meeting  
Meet anytime  
Join Zoom Meeting  
<http://gg.gg/ICEHUMS>  
Meeting ID: 858 132 1255  
Passcode: ICE



### INTERNATIONAL CONFERENCE ON EMERGING ISSUES – ICE TES

Time: This is a recurring meeting  
Meet anytime  
Join Zoom Meeting  
<http://gg.gg/ICETES>  
Meeting ID: 869 481 9461  
Passcode: ICE



## 3. End of the Session

- Before ending the session, the Session Chair will fill out the evaluation form.



## Virtual Conference using Konfrenzi Platform

The global COVID-19 pandemic, which is still occurring to date, has resulted in impediments to the holding of scientific/academic conferences in Indonesia. One alternative solution to this problem is to hold virtual conferences by utilizing online information and communication technology. This onference can be accessed via the link: <https://konfrenzi.com/link/WM9CqjF>. In general, there are two types of virtual conferencing, which are briefly described below.

### 1. Synchronous Virtual Conference (SVC)

The implementation of the SVC is very similar to a traditional conference, except that the presentation sessions go completely online; thus, the physical meeting is eliminated. The presenter's talk time is still limited as usual (a session moderator is needed), and the interaction with the audience (questions and answers) must also be instantaneous. The point is, everything (presentations and questions and answers) is carried out in real time via the internet / online. Some of the popular applications that can be used for example are ZOOM, Google Meet, Skype, WebEx, and many other applications as well. Since it is implemented in real time with a very limited time, many technical problems might occur in VirtualConf SVC. The problems might be a slow or even intermittent presenter / audience internet connection, technical difficulties with laptop / smartphone cameras, problems with mic / speaker, background noise, laptop hangs suddenly, gadget runs out of battery, and so on. These problems might result in ineffective presentation sessions.

### 2. Asynchronous Virtual Conference (AVC)

The implementation of AVC is different from traditional conferences. The concept is quite simple, namely physical meetings are eliminated and all presenters make video recordings of their presentations instead. The video is then uploaded to the internet by each presenter, so that other conference participants can watch and listen to the presentation video. Then, the interaction with the audience is carried out online, through an online question and answer forum. The committee opens access to view video presentations and opens a question and answer forum for a rather long period of



time, for example for one week. Thus, even if the presenter / audience experiences technical problems at a certain point in time, this will not be too much of a problem, because the presentation video can be viewed again at any other time, and also the question-and-answer interaction can be held at any time within one week. Thus presentation sessions can be very effective. There are quite a number of conferences that have been held virtually / online, even a few years ago (especially in Europe and America) before the outbreak of the COVID-19 outbreak, both with the SVC and AVC methods. We can find many articles on the internet discussing the advantages and disadvantages of each method (SVC and AVC) and taking valuable lessons from their various experiences. Based on these articles, we recommend implementing VirtualConf with the AVC method rather than SVC. The Konfrenzi platform can be used for the implementation of VirtualConf both SVC and AVC. Konfrenzi can be directly used for SVC implementation, where the stages are exactly the same as traditional conferences. Especially for the implementation of AVC, we have recently complemented our system by adding new features in the form of a Presentation Video Embedding (YouTube-based) and also an Online Question & Answer Forum. AVC features are available in the Premium and Ultimate license packages, and not available in the Standard license package. We hope the brief information is useful to make you familiar with Konfrenzi.com.

## Guidelines for Scientific Video presentation

### A. Rules for Scientific Presentation

1. Every scientific presentation will be in a form of a recorded video (maximum duration 10 minutes) followed by a live Q&A (maximum duration 5 minutes).
2. Thus, every presenter should prepare his/her recorded presentation in a form of a video file (one file such as .mp4) of maximum 10 minutes. He and she also has to record the content of the presentation using Microsoft Power Point in English with maximum file size 100 MB and upload it to YouTube. Please submit the link YouTube file into the Konfrenzi system.
3. Audiences are not allowed to record, download, copy, or edit the presentations.

### B. Tips for preparing video file for scientific presentation

1. Before recording your presentation, please prepare the following items:
  - a. Microsoft PowerPoint Presentation slides.



- b. Laptop/computer.
- c. Microphone.
2. To record your voice and make sure the video is audible. Please connect the microphone/headset to your laptop/computer.
3. Since your voice will not be recorded while you switch the pages, you will have to finish your words before you go to the next page.
4. Hyperlinks are not available for the recorded presentation; thus, if you would like to play videos, please embed them directly in the slides.



## Instruction for Session Chairs/Presenters/Attendees

### Session Chairs

A session chair will be responsible for:

- Introducing the session, and then each author/paper-title before playing the video.
- Observing and taking notes of questions from Q&A panel during the presentation playback.
- Reading the questions to the presenter during the Q&A period with absolutely no delay on the allocated Q&A slots.
- Concluding the session and filling out the evaluation form.
- Making sure the session starts and finishes on time.

Notes for the Session Chair:

- Please join the session at least 15 minute in advance by clicking a link that Organizer will provide via email.
- Please check and test your microphone once joined so that the session can start on time.
- Please turn on your video to engage the attendees during the sessional introduction and Q&A.
- Please turn off the video when the video is played so that the attendees can focus on the talk video.
- Please make sure to ask the questions verbally and according to the FIFO time they were first submitted.
- Please feel free to ask some of your question when there are not many questions from the audience.
- If the attendee needs to clarify their question, the Session Chair may unmute the attendee who placed the question to make clarifications.
- Please be mindful of the Q&A time limits! Any delays on the predetermined slots of each session will push other sessions behind.



## Presenters

- Please join at least 15 minutes before your designated time slot by clicking the link that the organizer will send you via email.
- Please be present during the video playback as well as the Q&A session.
- During the replay of the presentation video, your microphone will be muted during the video playback and you are encouraged to keep an eye on the attendees' questions.
- At the end of the pre-recorded presentation, your microphone will be unmuted and please open your webcam to engage well when answering questions.
- If the time does not permit you to answer some of the questions, you may want to discuss the answer off-line.
- You may stay in the session as an attendee when not presenting.

## Attendees

- Since webinars are intended to be "listen-only," the organizer will mute all webinar participants by default.
- To make sure the virtual conference runs smoothly and productively, following the introduction and the video presentation, the conference chair will moderate a brief Q&A session.
- All attendees are welcome to ask questions during the replay of the presentation video by typing your question in the given chat box.
- Since the time is limited, the Session Chair will select and ask the questions during the Q&A session.
- You will be unmuted if you would like to elaborate your questions by virtually raising hand; however, the limited Q&A duration, attendees may want to discuss with the author(s) off-line.
- You do not need to announce yourself when arriving or leaving a Session.





## Conference Schedule

The program schedule will be set in Western Indonesia Time (WIB or GMT+7).

Please adjust your time to be in line with WIB or GMT+7. Please visit <http://time.bmkg.go.id/> to get more information about WIB.

### ICE-TES Timetable

Day 1: Thursday, 1 July 2021

Day 1 (1 July 2021)		
	Activities	Description
08.50-09.00	Pre-event	Video
09.00-09.30	Opening ceremony	Prof. Ir. Sri Widiyantoro MSc. PhD. IPU Dr. Hapnes Toba, M. Sc., IPM
09.30-10.00	General Keynote Presentation	Prof. Ahmad M. Ramli
10.00-10.30		Drs. Ignasius Jonan, M.A.
10.30-11.00	Paper presentation 1	a maximum of 15minutes for each presenter
11.00-11.30		
11.30-12.00		
12.00-12.30		
12.30-13.00		Break Time
13.00-13.30	Keynote Presentation	Prof. John Silke
13.30-14.00		drg. Ferry Sandra, PhD.
14.00-14.30	Paper presentation 2	a maximum of 15minutes for each presenter
14.30-15.00		
15.00-15.30		

Day 2: Friday, 2 July 2021

Day 2 (2 July 2021)		
	Activities	Description
08.50-09.00	Pre-event	Video
09.00-09.30	Keynote Presentation	Prof. Takayuki Arai
09.30-10.00		Prof. Young Ho Kim
10.00-10.30		Prof. Dr. dr. Susy Tjahjani, M.Kes
10.30-11.00	Paper presentation 3	a maximum of 15 minutes for each presenter
11.00-11.30		
11.30-12.00		
12.00-12.30		
12.30-13.00		Break Time
13.00-13.30	Paper presentation 4	a maximum of 15minutes for each presenter
13.30-14.00		
14.00-14.30		
14.30-15.00	Closing Ceremony	Closing remark and best paper announcement
15.00-15.30		



## ICE-HUMS Timetable

Day 1: Thursday, 1 July 2021

Day 1 (1 July 2021)		
Activities	Description	
08.50-09.00	Pre-event	Video
09.00-09.30	opening ceremony	Prof. Ir. Sri Widiyantoro MSc. PhD. IPU Dr. Hapnes Toba, M. Sc., IPM
09.30-10.00	General Keynote Presentation	Prof. Ahmad M. Ramli
10.00-10.30		Drs. Ignasius Jonan, M.A.
10.30-11.00	Paper presentation 1	a maximum of 15minutes for each presenter
11.00-11.30		
11.30-12.00		
12.00-12.30		
12.30-13.00		Break Time
13.00-13.30	Keynote Presentation	Prof. Pim Martens
13.30-14.00		Dr. Dwinita Larasati, M.A.
14.00-14.30	Paper presentation 2	a maximum of 15minutes for each presenter
14.30-15.00		
15.00-15.30		

Day 2 : Friday, 2 July 2021

Day 2 (2 July 2021)		
Activities	Description	
08.50-09.00	Pre-event	Video
09.00-09.30	Keynote Presentation	Prof. Chien-Hsu Chen
09.30-10.00		Prof. Dr. Drs. Wilson Bangun, M.Si.
10.00-10.30		Prof. Dr. Dra. Marcellia Susan Karnadi, M.T.
10.30-11.00	Paper presentation 3	a maximum of 15 minutes for each presenter
11.00-11.30		
11.30-12.00		
12.00-12.30		
12.30-13.00		Break Time
13.00-13.30	Paper presentation 4	a maximum of 15 minutes for each presenter
13.30-14.00		
14.00-14.30		
14.30-15.00	Closing Ceremony	Closing remark and best paper announcement
15.00-15.30		



## ICE-TES Timetable

### Paper Presentation 1

Day 1: Thursday, 1 July 2021

ROOM A at 10:30-12:00

Artificial Intelligence, Big Data, IoT, Robotics, Multimedia and Game	Authors	Title
ABS-037	Ratnadewi Ratnadewi, Aan Darmawan Hangkawidjaja, Agus Prijono, Rudy Wawolumaja, Kartika Suhada, Maria Christine Sutandi, Andrew Sebastian Lehman, Ely Sarvia and Kervin Lusiano	Exploration of an Indonesian Currency Legality Detection System by Utilizing Image Intensity of RGB Mean Values
ABS-047	Joseph Sanjaya, Mewati Ayub, Hapnes Toba	Comparative Study of Convolutional Neural Networks-Based Algorithm for Fine-Grained Car Recognition
ABS-063	Muliady Muliady, Tien Sze Lim, Voon Chet Koo, and Nathaniel Pius Winata	Estimation of Paddy Leaf Nitrogen Status Using a Single Sensor Multispectral Camera
ABS-065	Novie Theresia Br. Pasaribu, Erwani Merry, Kalya Icasia, Jordan Eliezer, Che-Wei Lin, Febryan Setiawan	Taekwondo Poomsae-3 Movement Identification by using CNN
ABS-076	Semuil Tjiharjadi	Design and Implementation of A Path Finding Robot Using Modified Trémaux Algorithm
ABS-091	Marvin Chandra Wijaya	Priority Petri Net Multimedia Model For Non-Deterministic Events of Multimedia Presentations

Day 1: Thursday, 1 July 2021

ROOM B at 10:30-12:00

Bio informatics, Medical and Veterinary Science	Authors	Title
ABS-005	Hanna Sari Widya Kusuma, Hartini Tiono, Philip Onggowidjaja, Selonan Susang Obeng, Wahyu Widowati, Cintani Dewi Wahyuni, Cahyaning Riski Wijayanti, Muhammad Aldi Maulana, Aditya Rinaldy, Rizal Rizal	Anti-inflammatory Activity Screening of Pineapple (Ananas comosus) Core Extract in Lipopolysaccharide-induced RAW264.7 Cell Line
ABS-008	Wahyu Widowati, Rita Tjokropranoto, Cindy Damayanti, Hanna Sari Widya Kusuma, Aditya Rinaldy, Rizal Rizal	Potential of Black Tea (Camellia Sinensis (L.) O. Kuntze) Extract as Anti-oxidant, Skin Anti-aging
ABS-009	Ervi Afifah, Hartini Tiono, Philips Onggowidjaja, Selonan Susang Obeng, Wahyu Widowati, Cintani Dewi Wahyuni, Cahyaning Riski Wijayanti, Muhammad Aldi Maulana, Tri Handayani, Rizal Rizal	Luteolin Possess Anti-Inflammatory Effect on LPS induced RAW 264,7 Cell Lines
ABS-029	Julia Windi Gunadi, Diana Krisanti Jasaputra, Decky Gunawan, Ludovicus Edwianto, Kwee Lindawati, Harijadi Pramono, Adrian Suhendra, Ghita Sarwidyantry, Hanna Goenawan, Ronny Lesmana	The Effect of Different Intensities of Treadmill Exercise on FGF23 Gene Expression in Gastrocnemius and Soleus Muscles of Wistar Rats
ABS-038	Ermi Girsang, Chrismis Novalinda Ginting, I Nyoman Ehrich Lister, Cahyaning Riski Wijayanti, Wahyu Widowati, Rizal Rizal	Antioxidant Properties of Salacca zalacca (Gaertn.) Voss Peel Ethanolic Extract Compared to Chlorogenic Acid
ABS-043	Tiur Gantini, Hans Christian	Analyse Protein Model of the SARS-CoV-2 Virus Using Data Mining Methods

Day 1: Thursday, 1 July 2021

ROOM C at 10:30-12:00

Bio informatics, Medical and Veterinary Science	Authors	Title
ABS-067	Didik Priyandoko, Wahyu Widowati, Cintani Dewi Wahyuni, Hanna Sari Widya Kusuma, Rizal Rizal	Antioxidant Properties of Soybean (Glycine max) Extract and Its Compounds
ABS-083	Dian Ratih Laksmiawati, Diah Ika Pratami, Wahyu Widowati, Hanna Sari Widya Kusuma, Cahyaning Riski Wijayanti, Cintani Dewi Wahyuni, Ervi Afifah, Rizal Rizal	Significance of Antioxidant Properties of Curcuma longa L. and Curcuma xanthorrhiza rhizomes
Dental Science and Advanced Dentistry	Authors	Title
ABS-034	Vinna Kurniawati Sugiaman, Henry Yonatan Mandalas, Ethan Yeshael Tanamal, Nathalia Cahya Calista, Natalia Pranata	The Effect of Agarwood Leaves Ethanol Extract on Porphyromonas Gingivalis Growth Inhibition and in Vitro Cytotoxicity Assay on Fibroblast
ABS-087	Aprianisa Obsidiany Daisy Tarigan, Hendra Polii and Rosalina Intan Saputri	Comparison of Two Dental Age Estimation Methods: the London Atlas and the Schour & Massler Atlas in 3-23 Years Old Indonesian
ABS-095	Rudy Djuanda, Eliza Madyanty, Almira Anggarini Witjaksono, Vinna Kurniawati Sugiaman, Natalia Pranata	The Effect of Apple Vinegar as an Irrigation Solution to Dental Root Canal Microstructure



## Paper Presentation 2

Day 1: Thursday, 1 July 2021

ROOM D at 14:00-15:30

Electrical, Electronics, Computer Engineering and Science	Authors	Title
ABS-049	I Gede Made Kama, I Ketut Gede Darna Putra, Made Sudama and Linawati	The Color Dissimilarity Based Method Among Other Segmentation Methods: a Comparison
ABS-054	Sodikin- Hendramawat Aski Safarizki	Safety Driving Behavior of Adolescents Pre-Owning Driving License (SIM)
ABS-064	Erwani Merry Sartika, Novie Theresia Br. Pasanbu, Richard Setiawan, Reynaldy Felicius Gunawan, Dion Melvem Siswanto, Che-Wei Lin, and Febrian Setiawan	Virtual Reality Stimulants of Motor Ability through the Virtual Reality-Based Game
ABS-094	Zainal Anifin- Linda Fitri	Implementation of Battery Energy Storage System at Cirata PV Solar Floating for Reducing the Electricity Cost Production on Jamali Grid
Process Automation, Scheduling and Adaptive Industrial Engineering	Authors	Title
ABS-068	Novie Theresia Br Pasanbu, Vivi Anisandhy, Christina, Elty Sarvia, Rainisa Maini Heryanto, Erwani Merry Sartika, Audyati Gany, Olga Catherina Pattipawaej, Richard Setiawan, Jessica	Design of Bilateral Hand Movement Device
ABS-081	Winda Halim, Rainisa Maini Heryanto, Santoso, Christina, Erwani Merry Sartika, Audyati Gany, Andrew Sebastian Lehman, Anggie Ervany Haryono, Vieni Candhya Wigayha	Experimental Design of Driving with Distractions at Urban Area using Simulator Driving

Day 1: Thursday, 1 July 2021

ROOM E at 14:00-15:30

Geo informatics, Building Structure, Landscape and Architecture	Authors	Title
ABS-021	Robby Yussac Tallar, and Teofilus Sawang	Experimental Study on Velocity Profiles due to Ecological Barriers
ABS-023	Efferiki, Robby Yussac Tallar, Alexander Yovan Suwono	Investigation on the Effectiveness of Riprap Layer Design for Circular Bridge Pier
ABS-025	Cut Talitha Salsabila Nuraprii, Robby Yussac Tallar, Alexander Yovan Suwono	Comparative Study of Riprap Model Design for Scour Protection of Bridge Pier
ABS-026	Dea Lidya, Robby Yussac Tallar, Alexander Yovan Suwono	The Experimental Study of Optimum Thickness on Riprap Layer Design
ABS-027	Daud Rahmat Wiyono, Roi Milyardi, YosafatAji Pranata, and Robby Y Tallar	The Effect of Seismic Masses in Calculation of a 17 Multi-story Concrete Structure
ABS-030	Deni Setiawan, and Stefanny Abigail	Identification of Risk Factors for Delayed Time Schedule in Summarecon Serpong Playfield Preschool Project

Day 1: Thursday, 1 July 2021

ROOM F at 14:00-15:30

Geo informatics, Building Structure, Landscape and Architecture	Authors	Title
ABS-033	Roi Milyardi <sup>1</sup> , Deni Setiawan <sup>2</sup> and Tri Octaviani Sihombing <sup>3</sup>	Flood Risk Assessment of Heritage Building in Semarang City
ABS-052	Jeffrey Limas Lim, Ayomi Dita Rarasati, and Mohammad Ichsan	Identification of Risks in Making Decision for Overseas Expansion by Indonesian State-Owned Construction Enterprise
ABS-053	Rumasoreng W.A.K., Karyadi, and Nindyawati	Pull-Out Resistance of Glued-In Rod Embedded Parallel to Grain in Laminated Bamboo with Two Edge Distance Variations
ABS-066	Marwahyudi, S Sangadji, Halwan Alfisa Saifullah, S.A. Kristiawan	Experimental Study of Shear Strength of <i>Purus Lobang Berkait</i> (PLB)-Masonry Wall
ABS-073	Noek Sulandari, Cindrawaty Lesmana, Cindy Maria Setyana	Engineering Education: Measuring the Relationship Between Knowledge and Confidence to the Student Performance
ABS-097	Ferlina Sugata, Nathalia Yunita Sugiharto, Nina Nurviana, Seriwati Ginting, Isabella Istipraya Andreas, Shirley Nathania Suhanjoyo, Andi A. Hamzah and Heddy Heryadi	Bio-Cord as an Ecotechnological Wastewater Treatment for Productive and Attractive Urban Open Spaces



### Paper Presentation 3

Day 2: Friday, 2 July 2021

ROOM G at 10:30-12:00

Health informatics, Public Health, and Clinical Research	Authors	Title
ABS-016	July Ivone, Stella T Hasianna and Victor Yohanes S, Vilia Ruthy W	Relationship between Low Birth Weight (LBW), Birth Length, Basic Immunization History and Stunting in Children Age 9 - 60 Months in Kabupaten Purwakarta
ABS-040	Nur Ika Haniastuti, Nike Susanti, Hana Apsari Pawestri and Kartika Dewi Puspa	Application of Freeze-thaw Harvest for SARS-CoV-2 PCR EQA Panel Material
ABS-046	Charissa Lazarus, Khamelia Malik	Suicide and Narcissistic Personality Traits: a Review of Emerging Studies
ABS-058	Elty Sarvia, Elizabeth Wianto, Erwin Ardianto Halim, Elvira Natalia	Expected Variables to Design Sleeping Facilities for the Elderly Based on the Potential Stakeholders Point of View
ABS-093	Wahyu Widowati, Teresa Liliana Wargasetia, Fanny Rahardja, Rimonta F Gunanegara, Hanna Sari Widya Kusuma, Seila Arunwardana, Cintani Dewi Wahyuni, Aditya Rinaldy, Cahyaning Riski Wijayanti, Tri Handayani, Rizal Rizal	Potential of Wharton's Jelly Mesenchymal Stem Cells as an Alternative Candidate for Covid-19 Therapy

Day 2: Friday, 2 July 2021

ROOM H at 10:30-12:00

Software Engineering, Information and Communication Technology	Authors	Title
ABS-011	Apliana Fajri Wibowo, Yova Ruldeviyani	Factors Affecting Success of Team Members in Indonesia Scrum Implementation
ABS-013	Erwin Ardianto Halim, Monica Hartanti, Maresha Caroline Wijanto, Yosepin Sri Ningsih, Hendra Setiawan, Yudita Royandi, Yunita Setyoningrum, Berti Alia Bahaduri, Aulia Wara Arimbi Putri	The Application of Digital Module Design of East Sumba Woven Fabric on Interior Accessories
ABS-057	Bayu Rima Aditya, Dina Fitria Murad, Oscar Kamalim, Aditya Permadi, Andriyah, Fathul Jannah, and Irawan Nurhas	The Use of Technology in Indonesian K-6 Education during Covid-19 Pandemic: a Review
ABS-060	Febina Anastasha, Teddy Marcus Zakaria	Build Software of Information Management Community Service Events
ABS-096	Bernard Renaldy Suteja, Wilfridus Bambang Triadi Handaya	User Interactions Analysis on a Moodle-based online Learning Management System during Pandemic

### Paper Presentation 4

Day 2: Friday, 2 July 2021

ROOM I at 13:00-14:30

Nutrigenomics and Food Science	Authors	Title
ABS-019	TE Pramudito, EGA Putri, E Pahuphi, G Florencia, MR Gunawan, MP Pratiwi and Y Yogiara	Bioactivity of Soybean Tempeh Against Diarrhea Associated Pathogen is More Correlated with the Number of Total Bacteria than Specific Major Bacterial Phylum
ABS-031	Diana Krisanti Jasaputra, Julia Winda Gunadi, Penny Setyawati Martioso, Larissa, Yenny Noor, Ima Pezmanasari Gani, Erik Dwikumia Saimari, Desman Situmorang, Andi Haryanto	Effects of Herbal Ingredients (Allium Sativum, Punica granatum, Curcuma longa, Curcuma xanthorrhiza) on FATP3 Gene Expression in Aorta of High Fat Diet-fed Rats: a Preliminary Study
ABS-055	Sri Wulandari, Makhmudun Aimun and Anggoro Cahyo Sukartiko	Biochemical Characteristics of Ground Robusta Coffee under Various Postharvest Technologies and Processing Parameters
ABS-092	Deni Rahmat, Wahyu Widowati, Etik Mardiyati, Eny Kusnini, Abdi Wira Septama, Yati Sumiyati, Mita Restinia, Sjaikhurizal El Muttaqien, Cintani Dewi Wahyuni, Hanna Sari Widya Kusuma, Muhammad Aldi, Tri Handayani, Rizal Rizal	Substantially Improved Antioxidant Activity of Modified Polymeric Nanostructure Entrapping Curcumin

Day 2: Friday, 2 July 2021

ROOM J at 13:00-14:30



Machine Learning, Edge Computing, Deep and Federated Learning	Authors	Title
ABS-032	Hendra Bunyamin, Hapnes Toba, Meyliana, and Roro Wahyudiningsih	Breast Cancer Histopathological Image Classification Using Progressive Resizing Approach
ABS-082	Natalia Hartono	Multi-objective Bees Algorithm for Feature Selection
ABS-089	Audyati Gany, Meilan Jimmy Hasugian, Erwani Merry Sartika, Novie Theresia Br. Pasanbu, Hannah Georgina	Eye Abnormality Automatic Detection Using Deep Learning based Model

## ICE-HUMS Timetable

### Paper Presentation 1

Day 1: Thursday, 1 July 2021

ROOM K at 10:30-12:00

Family, Gender and Intergenerational Issues	Authors	Title
ABS-26	Jeanyfer, Eva Tuckyta Sari Sujatna, Susi Yuliawati, Trisnowati Tanto	Female Representation in <i>Legenda</i> : Tangkuban Perahu: a Transitivity Analysis
ABS-36	Affah Z. Sani, Destie N. Ramadhan, Minerva Patricia, Pingkan C. B. Rumondor, Farah M. Djalal	How do Indonesians perceive Marriage? Semantics Analysis of Marriage as a Concept and its Relation with the Well-Being
ABS-50	Abd Rahman, Sri Rum Giyarsih, Sigit Herumurti BS	Desire to Have Children Assessed from Socioeconomic Context Post Disaster in Palu
ABS-59	O.Irene Prameswari Edwina, Tessalonika Sembiring, Cindy Maria, Jean Esparanci	Family Resilience: Traits, Positivity, and Close Relationship in Adolescents
ABS-60	Ria Wardani, Ira Adelina, Heliany Kiswantomo	Predicting Retention: Sociodemographic, Motivational, and Perceived Social Support Factors
ABS-64	Fenty Lidya Siregar, Henni, Silvanni Comara	The Representation of Gender in Gamer's Politically Correct Bedtime Stories: a Critical Stylistic Analysis

Day 1: Thursday, 1 July 2021

ROOM L at 10:30-12:00

Financial Models, Accounting, Marketing and	Authors	Title
ABS-20	Tan Ming Kuang, Lidya Agustina, and Yani Monalisa	Using Educational Game for Improving Students' Knowledge and Interest in Investing in the Capital Market
ABS-24	Apriani D.R. Atahau, Imanuel Madea Sakti, Andrian D. Horuta, Min-Son Kim	Green Microfinance and Renewable Energy: Empowering the Role of Women in Rural Areas
ABS-34	Yenni Merlin Djajalaksana and Doro Edi	Utilization of Digital Marketing after Covid-19 Pandemic in Indonesia Businesses
ABS-41	Moh Farid Najib	Assessing Business Performance of the Traditional Market Trader: the Role of Buyer-Supplier Relationship and Dynamic Capabilities
ABS-51	Maya Malinda, Asni Harianti, Yolla Margaretha, Henky Lisan Suwarno, Kaleb Immanuel Yahya, Miki Tjandra	Comparison of Financial Literacy for Micro, Small and Medium Enterprises Entrepreneurs at Bojong Soang upon Using Financial Planning Application "SAKA (paSAK Abdi)"
ABS-57	Rhosalina Damayanti, Adrian Izaak Rompis and Aprina Nugrahesthy Sulistyia Hapsari	Testing the Internal Control of Simda Application in Effort to Improve Public Accountability

Day 1: Thursday, 1 July 2021

ROOM M at 10:30-12:00

Financial Models, Accounting, Marketing and Economic Growth	Authors	Title
ABS-62	Rima Kusuma Rini, Nanda Ayu Wijayanti	Does Socioeconomic Factors drive Peer to Peer Lending? Analysis in Indonesia
ABS-65	Christina Wirawan	Bibliometric Analysis of Product-Service System Related to Life Cycle
ABS-77	Elvira Luthan, Yulia H. Yeni, En Besra	Analysis of Factors Affecting the Sustainability of Village-Owned Enterprise in the Province of West Sumatera
ABS-80	Ita Salsalina Lingga	The Importance of Internal Control on Accounting Information System's Quality: Survey on Banking Sector
ABS-99	Ilham Pranata, SeTin SeTin	The Roles of Organizational Politics and Fairness in the Relationship between Relative Performance Evaluation and Managerial Performance
ABS-110	Marcellia Susan, Jacinta Winarto, Agus Anbowo, Yusuf Osman Raihin, Martalena, Herlina, Herman Kambono, Enny Prayogo	Sustaining Customer Loyalty in Higher Education

### Paper Presentation 2



1st INTERNATIONAL CONFERENCE ON EMERGING ISSUES  
IN TECHNOLOGY, ENGINEERING AND SCIENCE  
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IN HUMANITY STUDIES AND SOCIAL SCIENCE  
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Day 1: Thursday, 1 July 2021

ROOM N at 14:00-15:30

Financial Models, Accounting, Marketing and Economic Growth	Authors	Title
ABS-135	Rifal Hijira, SeTin SeTin	The Interactive Effects of Superior Trust and Subordinate Involvement in Decision Making on Budget Gaming and Budget Value
ABS-139	Michael Christian, Lasmary RM Girsang, Henilia Yulita	Measuring Ease of Use Aspects of Shopee Usage Behaviour During Pandemic Using the PLS-SEM Approach
Psychological, Education and Social Resources in the New Normal	Authors	Title
ABS-75	Yuspendi, Trisa Genia C. Zega, Indah Soca R. Kuntari, Lie Fun Fun, and Ida Ayu N. Kartikawa	The Role of Adult Attachment and Spiritual Well-Being Towards Wife's Marriage Satisfaction in the Muslim Community of Bandung
ABS-109	Imelda Junita, Fanny Kristine, Sherlywati, Rizki Muhamad Sidik	Potential Relationship between Students' Satisfaction on University Attributes and Positive or Negative Word-of-Mouth (WOM) and Its Correlation with their Recommendations
ABS-115	Pumama E.D. Tedjokoesoemo, Poppy Firtatwentyana Nilasari, and Sriti Mayang Sari	Addressing The Independent Learning Curriculum ( <i>Kurikulum Merdeka Belajar</i> ) as a Form of Positive Disruption to Empower the Community
ABS-134	Robert O. Rajagukguk, Candra Sinuraya, Jane Savitri, Kristin Rahmani, Stephanie Andamani	Model of Student Identity Development by Chickering Theory

Day 1: Thursday, 1 July 2021

ROOM O at 14:00-15:30

Hybrid Approaches to Create Sustainability in Arts and Design	Authors	Title
ABS-8	Elizabeth Wianto, Monica Hartanti	The Role of Sustainable Packaging Design for West Java Local Products
ABS-16	Ariesa Pandanwangi- Dewi Isma Aryani- Belinda Sukapura Dewi- Ismet Zaenal Effendi- Wawan Suryana- MikyEndro Santoso- Leonardo- Beni Sasmito	Spiritual Value: a Mythological Figure in Keraton Kanoman Cirebon
ABS-40	Christine Claudia Lukman, Krismanto Kusbiantoro, Irena Vanessa Gunawan, Lois Denissa, Eliati Djakaria, I Nyoman Natanael, Grace Caroline Sahertian, Wenny Anggraini Natalia	Multidiscipline Hybrid Approach in Art and Design Education to Support the Sustainability of Batik Cimahi
ABS-46	Greysia Susilo, S.E., S.Sn., M.Hum., Veila Venisia	Changes in Interior Design Programming at Residencials after Covid-19 Pandemic
ABS-82	Lois Denissa	JFC Timeless Uses Hybrid Codes in Costumes for Reaching Sustainable Identity
ABS-87	Isabella Istihpraya Andreas, Shiry Nathania Suhanjoyo, Andi Aulia Hamzah, Ferlina Sugata, Nathalia Yunita Sugiharto, Nina Nurviana, Hedy Heryadi, and Seriwati Ginting	The Improvement of <i>Jamu</i> Appeal Using Creative Sales Strategy and Contemporary Design

Day 1: Thursday, 1 July 2021

ROOM P at 14:00-15:30

Hybrid Approaches to Create Sustainability in Arts and Design	Authors	Title
ABS-105	Ratnadewi, Agus Prijono, Ariesa Pandanwangi, and Andrew Sebastian Lehman	Preservation of the Tasikmalaya <i>Batik</i> Motif with Turtle Graphics
ABS-121	Ariesa Pandanwangi, Ratnadewi, Agus Prijono	Local Potential as the Source of <i>Batik</i> Design Using Turtle Graphics
ABS-151	Hayu Puspasari Saputri	Arumawa II: New Normal and Sustainable Café Concept in Turirejo, Malang, East Java
ABS-152	Elizabeth Susanti Gunawan, Krismanto Kusbiantoro and Sugiri Kustedja	Transformation of a Chinese Cultural Heritage House in Bandung: Towards Sustainability
ABS-153	Kezia Clarissa Langi, Dian Widiawati, Setiawan Sabana, and Tusita Metadevi Jayamangalani Suprpto	Development of Weaving Craft Motif Designs as a Diversification Attempt for Nias Local Souvenir Products
ABS-154	Petrus Gogor Bangsa- Wening Udasmoro, and Christian Budiman	Self-taught Online Graphic Designer in Salaman, Magelang: Between Art Work, Decent Work and Vulnerable Work

## Paper Presentation 3

Day 2: Friday, 2 July 2021

ROOM Q at 10:30-12:00



Law and Legal Systems for Sustainable Development	Authors	Title
ABS-9	Johannes Ibrahim Kosasi- Yohanes Hermanto Sirait	Urgency in Using Indonesia Language on Business Contracts and Potency of Investment Dispute (the Study of Supreme Court Decision Number 601 K/Pdt/2015)
ABS-10	Tresnawati	Corporate Social and Environmental Responsibility Regulation and Implementation in Indonesia: Contribution for Sustainable Development or Legalized Robbery?
ABS-15	Rahel Octora , Fauzan Hanif M.	Financial Exploitation by Spouse, a Crime in Private Space (an Overview Based on Indonesian Legal System)
ABS-53	Ida Sumarsih	Study of Stock Ownership Nominee Agreement in Mining Business to People's Welfare that is Aligned for Sustainable Development Goals
ABS-70	Reggiannie Christy Natalia	Part Time Working Arrangement in Omnibus Law as Part of Sustainable Development and How it is Implemented in Developed Countries
ABS-108	Agus Setiawan, Harris Wiguna, Pan Lindawaty Suherman Sewu	Good Faith Principle and Legal Protection over Parties Related to Fiduciary Certificate in the Constitutional Court Decision in Indonesia after the Constitutional Court Decision Number 18/PUU-

Day 2: Friday, 2 July 2021

ROOM R at 10:30-12:00

Mental Health, Human Resources, Leadership and Well-being	Authors	Title
ABS-22	Misshiana Riasnugrahani, Meta Dwijyanthy, Cindy Maria	Calling and Work Engagement in Priest: the Moderating Role of Social Support
ABS-23	Susanti Saragih, Meily Margaretha, Sherlywati	The Role of Calling and Job Crafting on the Promotion of Employee Engagement for Organizational Sustainability
ABS-28	Hasna Fauziati Zakkiyah, Stella, Farah Mutiasari Djalal, & Yosef Dedy Pradipto	What does Sejahtera mean to you? The interpretation of Sejahtera based on money-saving habit, happiness, and life satisfaction
ABS-58	Ida Ayu Nyoman Kartikawati, Lie Fun Fun , Lisa Imelia, Stephanie Andamani	Teacher Self Efficacy and Work Engagement: the Mediating Role of Psychological Well Being
ABS-63	Heliany Kiswantomo & Theofanny	Neuroticism and Subjective Well-Being in Faculty of Psychology Student
ABS-66	Leonardus Dewa Hardana, Rayini Dahesihsani	Internal Change Agents' Strategies to Deal with Boundary in Organizations in Indonesia

Day 2: Friday, 2 July 2021

ROOM S at 10:30-12:00

Mental Health, Human Resources, Leadership and Well-being	Authors	Title
ABS-091	Pingkan C. B. Rumondor , Elien Rosalie, Syifa Fauziah, Adriana Ginanjar, Claudia Chiarolanza, Ashley K. Randall	Perceived Individual, Partner, and Community Stressors Related to Covid-19 Quarantine in Indonesia: a Qualitative Study
ABS-094	Efnie, Indrianie	Brain Respiration to Overcome Stress People Who Live with HIV (ODHIV)
ABS-101	Rhea Griselda- Olivia Gunawan- Laksmi Kusuma Wardani	The Interior of Medium-Scale Business Tiara Handicraft in Surabaya with Accessible Design Principle for Mentally and Physically Disabled Employees
ABS-102	Mutiara Ramadhita Roesad, Pingkan Cynthia Belinda Rumondor	Happily Married in the Absence of a Child: Marital Satisfaction of Voluntary and Involuntary Childless Individuals
ABS-136	Ka Yan, Priska Analya	Gratitude Journal, Expressive Writing and Mindfulness
ABS-138	Henilia Yulita, Vincencius Farrel Jonathan, Yustinus Yuniarto, Michael Christian, Eko Retno Indriyarti, Suryo Wibowo	The Role of Affective Commitment in Mediating the Relationship between Authentic Leadership and Organizational Learning at Chicken-Based Food Processing Company in Indonesia

Day 2: Friday, 2 July 2021

ROOM T at 10:30-12:00





Mental Health, Human Resources, Leadership and	Authors	Title
ABS-155	Ni Luh Ayu Vivekananda, Evi Ema Victoria Polii	Perma - a Multidimensional Framework of Well-Being in Indonesian
ABS-159	Erwin Permana, Widarto Rachbini, Wasi Widayadi, Rukun Santoso	The Dimensions of Transformational Leadership and Their Impacts on the Performance of Construction Business during Covid-19 Pandemic
Psychological, Education and Social Resources in the New Normal	Authors	Title
ABS-39	Ira Adelina, Vida Handayani, Maria Yuni Megarini	Systematic Literature Review on Mindset and the Benefits in Living New Normal Life
ABS-52	Tery Setiawan, Indah S.R. Kuntari, and Indah Puspitasa	Human Development Index in Indonesia: Are We in Line with SDGs and How Much Have We Grown?
ABS-54	Ellen Theresia , Marissa Chitra Sulastra and Serena Wijaya	Role of Parental Stress in Parenting Practice in Parents of Middle Childhood Children
ABS-76	Kriswanda Krishnapatria	Game Engagement amid Covid-19 Pandemic: Research on Students' Perception

## Paper Presentation 4

Day 2: Friday, 2 July 2021

ROOM U at 13:00-14:30

Religion, Language and Humanity Issues in Sustainable Communities	Authors	Title
ABS-2	Anton Sutandio, Ph.D.	Indonesian Film Industry amidst the Covid-19 Pandemic: an Observation on Sustainability Efforts
ABS-27	Trisnowati Tanto, Sri Iriantini	Local Wisdom in Indomie and Demae Ichoou Video Advertisements: a Multimodal Analysis
ABS-38	Mohamad Makincoiri, Mulyana	The Influences of Song Lyrics "Jagad Anyar Kang Dumadi" on the Productivity of Traditional Artists in Yogyakarta: a Critical Discourse Analysis
ABS-43	Selvia, M.Hum., Yohan Yusuf Arifin, M.His., Septeanie Sutandi, M.TCSOL.	Representation of Political, Social, and Cultural Phenomena in Biopics of Chinese Indonesian Figures Using Historical Approach
ABS-67	Brian L. Djumaty: Nina Putri Hayam Dey	Food Sustainability in Local Wisdom Perspective of the Indigenous People Dayak Tomun Lamandau
ABS-73	Dexon Pasaribu, Bagus Takwin, Pim Marten	The Role of Religious Orientation and Ethical Ideologies in Environmental Concerns amongst Teachers and School Staff in East Java, Indonesia

Day 2: Friday, 2 July 2021

ROOM V at 13:00-14:30

Religion, Language and Humanity Issues in Sustainable Communities	Authors	Title
ABS-78	Vera Budi Lestari Sihotang	Tangos Therapy: Health Behavior as the Result of Normalizing Power in Medicating Symptoms of Malaria on the Community of Sebesi Island
ABS-84	Maryani	The Perceptions of Indonesian University Students on the Use of Extensive Reading in English Grammar Class
ABS-90	Xuc Lin, Mariana, Fu Ruomei	Raising Environmental Awareness Through Teaching Chinese as a Second Language at University
ABS-95	Hurriyah	Local Religions and Contested Civic Space in Indonesia: a Case Study of Sunda Writan community in Cigugur
ABS-103	Irsanti Widuri Asih, Heru Nugroho, Budiawan	New Constellations of Power and Resistance in the Platform Economy: Study of Gojek
ABS-104	Devi Riskianingrum- Henry Yogaswara	The Recalled of Disaster Memory on Sebesi Island: a Historical Perspective

Day 2: Friday, 2 July 2021

ROOM W at 13:00-14:30

Religion, Language and Humanity Issues in Sustainable Communities	Authors	Title
ABS-106	Olivia Gunawan- Rhea Griselda- Diana Thamrin	The Influences of Chinese Culture on Historical Buildings in Surabaya
ABS-113	Rizki Theodorus Johan, S.S, M.A, Sonny Angjaya, S.S, M.Hum.	Healing Through Acting: the Therapeutic Effect through Online Monologue Performance
ABS-132	Julianti Kasih1 , Yenni Merlin Djajalaksana2 and Doro Edi3	Digital Interactions in Church Communities Attributable to COVID-19 Pandemic
ABS-156	Ullyna Dewi	Phonics Instruction for Young Learners in EFL Context: a Comparative Review
ABS-158	Muhammad Syafar, Helmy Faizi Bahrul Ulumi	Social Entrepreneurship Pesantren-Based to Support Rural Development in the Era of Covid-19 Pandemic (Case Study in District of Lebak, Banten Province, Indonesia)



## Keynote Speakers



### Ignasius Jonan

Former Minister for Energy & Mineral Resources of Indonesia (2016-2019), former Minister of Transportation (2014-2016) and former CEO of the Indonesian government-owned railway company, PT Kereta Api Indonesia (PT. KAI) which he preside from 2009 to 2014. Born in Singapore, Jonan received his Bachelor's degree in Accounting from Airlangga University, Surabaya in 1986, and M.A. in International Relations and Affairs from the Fletcher School of Law and Diplomacy and Tufts University in 2005. He started his professional

career in the banking sector, holding a managing director role in the American banking and financial services corporation, Citigroup. Right now, he is Independent Commissioner at PT Unilever Indonesia and PT Industri Jamu dan Farmasi Sido Muncul, Tbk.

### Abstract

#### "World Order after Pandemic?"

The world must move on from neoliberalism after the pandemic. According to World Economic Forum Founder Klaus Schwab Free-market fundamentalism has eroded worker rights and economic security, triggered a deregulatory race to the bottom, and prompted the emergence of massive new global monopolies. So as COVID-19 shakes the globe, it's time to re-evaluate some sacred cows. In the decades after WWII, the world made huge strides towards eradicating poverty, reducing childhood mortality, increasing life expectancy and expanding literacy. Capitalism, trade and international cooperation drove these changes, and must be defended. We must also remain focused on the Fourth Industrial Revolution and digital technology. Recent advances have given us the tools to confront the crisis through vaccines, new treatments and personal protective equipment. But it's time to confront outdated aspects of the global economy. Chief among these is the neoliberal ideology which supports free markets, financial deregulation and fiscal austerity. We must rethink what we mean by 'capital', whether financial, environmental, social or human. Today's consumers do not just want cheaper, better goods and services. Instead, they expect companies to contribute to the common good. There is a demand for a new kind of approach: stakeholder capitalism. Where businesses work to improve the state of the world, and not just shareholder profits. How do you think we can make the world a fairer place?





**Prof. Dr. Ahmad M. Ramli, SH, MH,  
FCBArb**

Born in Bandung on July 4, 1961, Prof. Dr. Ahmad M. Ramli, SH, M.H., FCBArb is Professor of Legal Studies, University of Padjadjaran who has experiences more than 10 years as Echelon I on several government agencies. In October 2016, he was appointed as Director General of Post and Information Technology, Ministry of Communications and Information Technology. He pursued education by completing the Bachelore, Master and Doctoral Program of Law (cumlaude)

at Padjadjaran University and Visiting Scholar Program at the University of California Berkeley United States, as well as some International training of Intellectual Property Rights. When he was a grand-student, he has been named by the Ministry of Education and Cultural Affairs as Exemplary Student of University of Padjadjaran in 1985.





### **Ikhsan Baidirus, SH., LLM.**

Born in Lubuk Basung on 21th June 1962, Ikhsan Baidirus, SH., LLM. is Director of Post, General Directorate of Post and Information Technology, Ministry of Communication and Informatics.

He pursued his undergraduate education at Padjajaran University, International Law, Bandung (1988), Case Western Reserve University, Master Program (Llm), Usa(2000), Westminster University, Post Graduate Certificate, London Inggris (2000).

### **Abstract**

#### **Telecommunication for Sustainable Community Development**

Telecommunication is a rapidly growing industry, this sector also plays a pivotal role as an enabler to economy and society all other sectors. Some stakeholders get to benefit directly from telecommunications to improve the quality of their products and services which in turn will enhance the health of the industry. Information communication technology plays an important role as a catalyst to enable and facilitate the implementation of the development plan. Access to borderless telecommunication infrastructure means access to knowledge. Its triggers creativity and innovation. Innovation is important to maintain company competitiveness and also for long-term advantages in company development. Economists often cite innovation as a critical element for growth. Overall telecommunications improve lives. Basic telecommunication infrastructure is the key to make ICT works. developing telecommunication networks will enable all other services providers to reach their customers. Pandemic force people to stay at their residential, its makes the need for an internet connection in community residential areas increase unprecedentedly. This condition needs to be addressed by operators accordingly by maintaining the performance of their services as well as increase monitoring of all related supporting networks including providing redundancy. Indonesia has laid 458,807 km of fiber optic cables for telecommunications backbones both on land and submarine which is not enough for a country like Indonesia. Being the largest archipelagic state whose territory is 5,26 million km square, building telecommunication infrastructure is a challenging issue. Nevertheless, all kinds of technologies are deployed to provide people with better access to telecommunication including the internet. Realizing the telecommunications and all derivatives services are becoming the new oil, the Government maintains the function of the law and regulations is to facilitate the growing needs of telecommunication access for any kind of purposes especially during the hardship caused by the covid19 pandemic. However, when new technologies are introduced such as OTT Platforms and mega constellation LEO satellites, all legal aspects must be carefully studied to maintain the beneficiaries of new technologies are public and states.



## ICETES



### Prof. John Hendry Silke

Prof. John Hendry Silke was born on 6th March 1968. He pursued his undergraduate education at King's College, University of London and Churchill College, University of Cambridge. He then continued his education at the Institut für Molekularbiologie II, University of Zürich. Currently, he is a professor & theme leader in The Walter and Eliza Hall Institute. He is also adjunct associate professor at La Trobe University, Melbourne. Furthermore, he is an editorial board member in Cell Death & Differentiation Journals and reviewing editorial board in Science Signalling Journals. Lastly, he is also a consultant in Anaxis. He has 168 publications with H-Index 65.

### Abstract

#### TNF - "Quid Custos Ipsos Custodiet" Juvenal - Who Will Guard the Guards

Tumor necrosis factor (TNF) is an inflammatory cytokine that, upon binding to its receptor TNFR1, can drive cytokine production, cell survival, or cell death and is a major component of an organism's anti-pathogen repertoire. It is a major guardian against infection, but when its regulation goes awry it can result in chronic inflammatory diseases that are a huge health burden. My lab tries to understand, using a combination of genetics and molecular biology, how TNF signalling is regulated with the hope that this will lead to new therapeutic opportunities. In the first part of my talk I will discuss a recently published study<sup>1</sup> describing a new auto-inflammatory syndrome that results from loss of one level of regulation. And in the second I will discuss unpublished work that has led to the identification of a new type of post-translational modification that limits the ability of TNF to induce cell death and which may help it guard against viral infections, including coronavirus.

<sup>1</sup>Lalaoui et al, 10.1038/s41586-019-1828-5; Mutations that prevent caspase cleavage of RIPK1 cause autoinflammatory disease, Nature 2020.





## Prof. Takayuki Arai

Prof. Takayuki Arai was born on November 12, 1966. He pursued his undergraduate education at Faculty of Science and Technology, Sophia University. He then continued his education at Faculty of Science and Technology, Sophia University. Currently, he is a professor at the Department of Information and Communication Sciences, Sophia University, 7-1 Kioi-cho, Chiyoda-ku, Tokyo, Japan. He is also a member of academic societies such as International Speech Communication Association (ISCA), The Institute of Electrical and Electronics Engineering (IEEE), The Institute of Electronics, Information and Communication Engineers, Japan (IEICE), The Acoustical Society of America (ASA), The Acoustical Society of Japan (ASJ), etc.

### Abstract

#### What is a Speech Chain and How Can This Concept Be Applied to the Various Areas of Speech Communication in an Intelligent Society?

The concept of “Speech Chain” introduced by Denes and Pinson is widely used to interpret speech communication systems. The concept was originally aimed at human speech communication: a speaker first forms a message in his/her brain, the message is transformed into an acoustic signal that is sent to a listener, and the listener decodes the signal back into the original message. This simple situation can be extended to many scenarios. The acoustic signal can be fed into a telephone and transmitted over a telephone network. In human-computer communication, the speaker can be a speech synthesis system or the listener can be an automatic speech recognition system. For people who have lost the ability to talk, a speech synthesis system can improve their quality of life, and for people who have impaired hearing, an automatic speech recognition system can be a saviour. Communication with others is crucial as we live with other people in a society. As societies transform into intelligent societies, it is even more important to investigate speech communication systems from a scientific point of view and develop relevant applications in accordance with scientific findings. In this talk, the speech production mechanism will first be reviewed by using a set of vocal-tract models. Then, Speech Chain variations will be introduced for various areas in speech communication. Finally, application of the Speech Chain concept to an intelligent society through our “My Voice” project will be shared.

Keywords: Speech Chain, Speech Communication, Speech Production, Speech Perception, Vocal-tract Models, My Voice Project





## Prof. Young Ho Kim Ph.D.

Prof. Young Ho Kim Ph.D. is a Professor College of Pharmacy in Chungnam National University, Daejeon 305–764, Korea.. He completed all of his education in College of Pharmacy, Seoul National University, Korea. He received several awards, such as Gasan Kwangdong Haksooldaesang in 2019, Good Teacher's Award (Chungnam National University) in 2018, and Haksooldaesang (Korean Society of Pharmacognosy) in 2016. He has 675 papers published and HIndex Scopus 66

### Abstract

#### Bioactive Components from Ginseng-Like Medicinal Plants

Ginseng-like medicinal plants worldwide and plant-originated adaptogens have very similar phytochemical and pharmacological properties. Several members are belonging to the Araliaceae, the ginseng family of flowering plants, and economically very important in Asian country including Korea, Japan and China. In our ongoing research for Araliaceae family plants, we focused on the phytochemical constituents and their pharmacological activities from *Panax ginseng*, *Acanthopanax koreanum*, *Kalopanax pictus* and *Dendropanax morbiferus*.

*P. ginseng* is a perennial plant and popular traditional herbal medicine that has been used to increase vitality, prolong life, enhance the resistance of the human body and have various beneficial effects, such as anti-fatigue, anti-stress, anti-anxiety, anti-inflammatory, and anti-depression. From the several parts of ginseng roots, leaves and flower buds, many new dammarane-type saponins were isolated and evaluated on pharmacological activities including effects on the intracellular radical scavenging, the growth of HL-60 human leukemia cells, the lipopolisaccharide (LPS)-induced interleukin (IL)-12 production in bone marrow-derived dendritic cells, and the myocyte contraction, respectively.

*A. koreanum* is an indigenous plant in Korea and used for arthritis, rheumatism, lameness, high blood pressure and as a tonic. Several pimarane-type diterpenoids and lupane-type triterpenoids were isolated from roots, stems and leaves of *A. koreanum*. They were tested inhibitory effects on the LPS-stimulated production of pro-inflammatory cytokines in bone marrow-derived dendritic cells.

*K. pictus* is a deciduous tree growing in East Asian countries. The stem bark of *K. pictus* has been used in traditional medicine to treat rheumatic arthritis, neurotic pain, and diabetes mellitus. The anti-inflammatory activity of isolated compounds was evaluated through inhibition of a  $\text{TNF}\alpha$ -induced  $\text{NF-}\kappa\text{B}$  luciferase reporter and by attenuation of  $\text{TNF}\alpha$ -induced pro-inflammatory gene (iNOS and COX-2) expression in HepG2 cells.

*D. morbiferus*, an endemic species in South Korea, has been used as an alternative traditional medicine for several diseases, such as headache, dysmenorrhea, infectious disorders, and skin disorders, for a long time. The extract of *D. morbiferus* leaves significantly inhibited tyrosinase activity and melanin formation in MSH-induced B16-F10 cells. It reduced melanogenesis-related protein levels, such as microphthalmia-associated transcription factor (MITF), TRP-1, and TRP-2, without any cytotoxicity

This report provides scientific support to the therapeutic use of ginseng-like medicinal plants and rationale for further studies on the application of these medicinal plants and their chemical components in medical use.





## Ferry Sandra

Ferry Sandra is a lecturer in Faculty of Dentistry, Trisakti University and an adjunct lecturer at the Faculty of Pharmacy, Padjadjaran University as well as the Faculty of Medicine, University North Sumatra. Apart from being a lecturer, he is also the editor in chief of the Indonesian Journal of Cancer Chemoprevention and a consultant at Prodia. He pursued his undergraduate education in Dentistry, University of Indonesia. Then, he continued his education at Oral and Maxillofacial Surgery, Kyushu University and Molecular and Cellular Biochemistry, Kyushu University. He has published 80 scientific papers over the last 10 years.

### Abstract

#### Development of Dental Pulp Stem Cell and Its Application

Role of dental stem cells continues throughout life. The stem cells do not play a role in tooth development merely, but in tooth homeostasis and repair as well. Several types of dental stem cells, including dental pulp stem cell (DPSC), stem cell from apical papilla (SCAP), stem cell from exfoliated deciduous teeth (SHED), periodontal ligament stem cell (PDLSC) and stem cell from dental follicle (DFSC) have been investigated. Among these stem cells, DPSC is of the most well investigated. DPSC has been suggested as valuable seed cells for various pulp tissues regeneration, including blood vessels, nerves and hard tissues. Isolated DPSC was reported to express cluster of differentiation (CD)117, and have a high growth rate. However in the dental pulp regeneration, besides the stem cell, the tissue regeneration would also require infection control and biomaterial/scaffold. Infection could induce inflammatory signalling which would down-regulate the differentiation capacity of DPSC. Therefore the inflammatory signalling should be inhibited, so that the capacity of DPSC could be restored. Biomaterial as an important aspect, have been developed so that high numbers of DPSC could be produced and delivered at the targeted area/tissue. Exploration of the natural and synthetic biomaterials have been reported so far. Besides the dental pulp regeneration, DPSC has been explored to form/regenerate other tissues, in the dental surrounding or even distance parts. In bone regeneration, DPSC could form bone nodule on the third week culture. This highly bone forming capacity should be useful for articular or even maxilla/mandible regeneration. Due to its high capacity in nerve regeneration, DPSC has been developed to produce nerve tissue, including facial nerve and inner-ear hair cell. In the clinical trial scheme, DPSC is being investigated for treatment of acute Ischemic stroke. And due to current pandemic situation, DPSC is also being investigated for its safety and efficacy on severe COVID-19 cases.







## Prof. Susy Tjahjani

Prof. Dr. Susy Tjahjani, dr., M.Kes was born on Bandung, 5 September. She pursued her undergraduate education in Medicine, Maranatha Christian University. Then, she continued her education at Padjadjaran University. Currently, she is a professor in Parasitology at Medical Faculty, Maranatha Christian University. Apart from professor, she also appointed as Chair of Maranatha Christian University Senate, assessment team for lecturer/assistant professor/associate professor/promotion, research reviewer of LLDikti IV and Maranatha Christian University, and assessment team of BKD. She has published 3 books. Her latest book was published in 2020 with the title: Penelitian Biomedik dan Ilmu Kedokteran (Book Chapter). She has also published 18 scientific articles in journal over the past 10 years.

### Abstract

#### Free Radicals and Antioxidants in Covid-19

Covid-19 is an acute infection via droplets into respiratory tract which causes pandemic condition and might go to severe disease attacking multiple organ. Its pathogenesis is closely related with hyperinflammatory, oxidative stress, and hemoglobinopathy condition and these ones are very closely correlated each other. This review might have a benefit in considering anti oxidant in the study of handling covid-19. Ineffectiveness of the respiratory system by invasion of the virus via ACE2 receptor which is rich in pneumocyte 2 is not only caused by the destroyed alveolar cell but also from the AT2 overproduction which causes hyperinflammatory condition as well as oxidative stress. Overproduction of AT2 is caused by ACE2 binding with viral spike protein which reduces ACE2 activation and inhibits conversion of AT2 to other type of angiotensin (angiotensin 1-7). AT2 binds to AT1R and stimulates NADPH oxidase to produce anion superoxide and it continues to produce mitochondrial ROS and damages mitochondria so that very little ATP to be produced. AT2 is also a potent proinflammatory mediator and might stimulate prostaglandin and VEGF to increase vascular permeability, and also might upregulate adhesion molecules (VCAM 1, P-selectin, and ICAM 1) on vascular endothelial cells and smooth muscle cells, activate monocytes to adhere, stimulate TNF alpha, IL6, IL8, ROS production. The ROS might activate also NF- $\kappa$ B with further detrimental impact i.e. endothelial as well as organ dysfunction.

On the other side Covid might cause hemoglobinopathy leading to inefficient hemoglobin in transporting oxygen and also might release toxic free iron and produce ROS. Several antioxidants including natural ones are very interesting and might work against this oxidative stress in various mechanism of action such as a direct scavenger, via Nrf2 etc. The role of pro-oxidant and antioxidant in Covid-19 would be present in this seminar.

Key words: Covid-19, oxidative stress, antioxidants



## ICEHUMS



### Prof. Dr. Pim Martens

Born in June 29, 1968 at Heerlen, The Netherlands, Prof. Dr. Pim Martens has a PhD in applied mathematics and anthrozoology and holds the chair 'Sustainable Development' at Maastricht University. He is the Founding Director of the Maastricht University Graduate School of Sustainability Science (MUST), and initiated the M.Sc. program Sustainability Science and Policy. Prof. Martens is project-leader and principal investigator of several projects related to sustainability science and education, in the context of human-animal relationships, and environmental (climate) change and health. Pim Martens is member of the Editorial Boards of the scientific journals *BioScience*,

*Sustainability: The Journal of Record*, and *Current Opinion in Environmental Sustainability*. Furthermore, he serves as a member of the Advisory Board of the Life Science Zurich Graduate School, the Advisory Board (StAB) of the Natural Resources Institute in Finland, and the Executive Board House of Animals. For 9 years, he has been the director of the International Centre for Integrated assessment and Sustainable development (ICIS), Maastricht University, and was member of the Dutch Health Council. Finally, Dr. Martens is a Fulbright New Century Scholar within the programme 'Health in a Borderless World' and winner of the Friedrich Wilhelm Bessel-Forschungspreis. Pim Martens has been a Leverhulme professor at Aberystwyth University, Wales, a research professor at ETH Zürich, Switzerland and Leuphana University Lüneburg (Germany), and visiting scholar at the London School of Hygiene and Tropical Medicine (UK), Harvard University (USA), Heidelberg University, (Germany), ETH Zürich (Switzerland), Aberystwyth University (Wales), Leuphana University Lüneburg (Germany), and Shandong University (China).

### Abstract

#### **Our Sustainability Challenges: Climate Change, Biodiversity and Health for All**

Our dominant current socio-economic and political systems have become decoupled from the larger ecology of life, and our relationship with our natural environment and the animals within has changed dramatically. This has led to various outbreaks of vector-borne and zoonotic diseases – with COVID-19 as the hard lesson learned (or not?). In this lecture, Pim Martens, Professor of Sustainable Development at Maastricht University, will discuss the complexities and connections between our own well-being and that of the animals with whom we live, and global environmental changes like climate change and biodiversity loss.



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## Dr. Dwinita Larasati, S.Sn., M.A

Born in Jakarta, 28 December 1972, Dr. Dwinita Larasati, S.Sn., M.A is a industrial designer, lecturer, researcher at Man & Industrial Product Design Research Group, Industrial Design Program, Faculty of Art and Design, Institut Teknologi Bandung (ITB), Indonesia. She pursued her undergraduate education at Design, Industrial Design Department, Institute of Technology Bandung (ITB), Indonesia in 1991-1997. She continued her master's education in Design Research / Industrial Design, Postgraduate Program, The Design Academy, Eindhoven, The Netherlands in 1998-1999. She pursued her doctoral education at Delft University of Technology, The Netherlands and graduated in 2007. She has published 12 journals and is now an Advisory Council Member in West Java Creative Economy & Innovation Committee (KREASI Jabar).

### Abstract

#### Co-Designing Our Common Future: from Sporadic Activism to Strategic Actions

In growing dense urban areas, community development mainly attempts to cope with issues around population growth and its impacts, such as disparity, poverty, access to basic services and infrastructure, mobility, solid waste management, and matters related to environmental qualities. In the case of Bandung City, whose dynamics are determined by its youth that dominates the demography, community development has taken various shapes; among which are initiatives that created numerous prototypes of urban solutions, which eventually managed to influence regulations and government policy at the city level. These practice-based improvements have led to the formulation of methods and concepts that keep being adjusted for acuity and relevance. This discussion covers the process of how a cross-community forum in Bandung utilises design thinking method and urban acupuncture concept in intervening public spaces and in conducting participatory development; how it maps crucial stakeholders to achieve common goals; and how its actions have elevated to another level, when the forum grew into a national-level hub that also contributes to the creative economy sector at the global level.





## **Prof. Chien-Hsu Chen Ph.D**

Prof. Chien-Hsu Chen Ph.D is a professor at Industrial Design Department College of Planning and Design National Cheng Kung University, Taiwan. He completed his undergraduate education at Industrial Design National Cheng Kung University Taiwan. He continued his education at Computer and Information Syracuse University, NY, U.S.A and Industrial Engineering The University of Texas at Arlington, TS, U.S.A. He was once a Director General of Technology Transfer and Business Incubation Center (2017-2020). His areas of research is Interaction Design, Ergonomics and Design, and Augmented

Reality Application.

### **Abstract**

#### **Creative a Conceptual Design Thinking with Three Design Disciplines**

Designers create product or service to satisfy customer needs and improve daily living conditions through a creation process. Conceptual design is essentially a creation process on early-stage design. This talk is going to explore the three design disciplines from product design, interaction design and service design perspective into the conceptual design process to promote creativity. We would like to create a processing of thinking to extend designers' creativity as an extension of their design. for better understanding of the creativity and creative process, the internet of things (IOT) design issue will be used to demonstrate how this thought can work on design concept.





### **Prof. Dr. Wilson Bangun, S.E., M.Si.**

Prof. Dr. Wilson Bangun, S.E., M.Si was born in Batukarang (Karo-North Sumatra), January 31, 1964. He is a professor at Faculty of Economics, Maranatha Christian University. He also a President of the Senate in Faculty of Economics, Maranatha Christian University and Professor Forum Leader in Maranatha Christian University. He pursued his undergraduate education at the HKBP Nommensen University, Medan (1989) and continued his master education at the University of North Sumatra, Medan (1999). He then continued his doctoral education at Padjadjaran University, Bandung and graduated in 2005. He has published five books, and his most recent book is *Pembangunan Sumber Daya Manusia: Teori dan Kasus di Indonesia dan Negara-Negara Asean Lainnya*, which published in 2021.

### **Abstract**

#### **Human Resource Development: a Study in Indonesia on ASEAN**

Human Resource Development is a process to improve the ability (knowledge and skills) to increase individual productivity in contributing to the prosperity of a countries society. Indonesia is currently focusing on Human Resource Development to solve development problems in realizing Indonesian 2045 vision, namely to become a developed country, prosperous people, sovereign, just and prosperous. One of the government's programs is to improve the quality of human life. President Joko Widodo was speech at the MPR-RI Annual Session, August 16, 2018 emphasized that Human Resource Development is an investment to the nation's future towards advanced Indonesia. Human Resource Development is a performance measure for a country through a three-dimensional approach: a long life, healthy, knowledge, and a decent life and each dimension is represented in each indicator. Various indicators in Human Resource Development in Indonesia show progress but are still below some countries in Southeast Asia. To meet human needs through the development process from various aspects, such as the construction of relevant facilities and infrastructure. The purpose of development is to create and adapt it to the environment to achieve well-being. Human Resource Development is expected to improve the quality of work to improve the welfare of the people of a country.

Keyword: Human Resource Development, long life, healthy, knowledge, decent life





### **Prof. Marcellia Susan**

Prof. Marcellia Susan studied undergraduate education at the Faculty of Economics, Department of Management, Parahyangan Catholic University, Bandung. She continued her education at the Faculty of Engineering and Industrial Management, Department of Industrial Management, Bandung Institute of Technology and Doctoral Program in Business Management, Padjadjaran University, Bandung. Currently, she is a professor in Management Science at the Faculty of Economics, Maranatha Christian University, Bandung.

### **Abstract**

#### **Sustaining MSMEs: the Role of Financial Literacy**

The economic growth of a country is supported by Micro, Small, and Medium Enterprises (MSMEs), especially for developing countries. In running their businesses, MSMEs need to make various business decisions. Some business decisions may affect the potential growth and the success of a business. The lack of MSMEs' financial knowledge often results in challenges in their operating, financing, and investing decisions. Proper financial decision-making requires an understanding of finances and the ability of money management. Ultimately, MSME owners/managers with substantial financial literacy would be able to sustain their business by managing financial resources through utilizing financial knowledge and skills



# Priority Petri Net Multimedia Model for Non-deterministic Events of Multimedia Presentations

Marvin Chandra Wijaya<sup>a</sup>

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**Keywords:** Petri Net, Multimedia Model, Multimedia Authoring, Non-deterministic Event.

**Abstract:** Nowadays, the use of multimedia for presentation needs has been widely used by various parties. Multimedia authoring translates the input data in the form of spatial and temporal layouts into a multimedia document. Multimedia documents are in the form of multimedia programming languages such as Synchronized Multimedia Integration Language. One of the problems in this translation process is the existence of a non-deterministic event which makes the translation process difficult. The objective of this study is to find a good method for translating multimedia authoring where the input is given has non-deterministic events and priority based on user input. The multimedia model needs to be modified to anticipate non-deterministic events in the temporal layout. In this study, a method called Priority Petri Net is proposed which is applied to a multimedia model. The results on multimedia authoring using the Priority Petri Net model obtained good results. However, the translation process takes a little longer time than using the regular Petri Net model. The use of the Priority Petri Net model makes the translation process better. Future research can be carried out by making various modifications to the multimedia model to obtain a good process and fast processing time as well.

## 1 INTRODUCTION


Multimedia is a way of communication today, multimedia components such as video, audio, text, animation, images are widely used as a communication medium. The multimedia components are combined to create an attractive multimedia presentation. The multimedia presentation is created using a tool called Multimedia Authoring. Multimedia Authoring combines every multimedia component used to produce a multimedia document (Picinin, Farines, Santos, & Koliver, 2018). Several multimedia programming languages are widely used as multimedia documents such as Synchronized Multimedia Integration Language (SMIL) and Nested Context Language (NCL) (Bulterman, 2018; Joel André Ferreira Dos Santos & Muchaluat-Saade, 2012).

Multimedia has been widely used in various fields such as education, business, sports, entertainment, and others (Hakim & Solechan, 2018; Wijaya, 2019; Yousafzai, Chang, Gani, & Noor, 2016). The use of multimedia increases the absorption of presentation

material on the audience who is listening to presentations through the use of multimedia. Humans can remember more if they both hear and see at the same time. Therefore multimedia has turned into interactive multimedia to increase audience participation, this participation will increase the delivery rate of presentation material (Kazanidis, Palaigeorgiou, Papadopoulou, & Tsinakos, 2018). These days interactive multimedia has been used for finance, e-commerce, social networking, E-Learning: training, teaching aids, learning media, entertainment: games, cultural communication: museum and gallery information. Interactive multimedia is the use of computers to create and combine images, text, audio, moving images (video and animation) by combining tools and links (or hyperlinks) that allow audiences to interact, navigate, create and communicate. An interactive multimedia presentation is a hypervideo consisting of various media which is navigated through hyperlinks (Meixner, 2017).

There are two kinds of interactive multimedia: Online Interactive Multimedia and Offline Interactive Multimedia. Online interactive multimedia is

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<sup>a</sup> <https://orcid.org/0000-0001-5920-4348>

interactive media that is conveyed via LAN, intranet, or the internet. Examples of online interactive multimedia are websites, Yahoo Messengers, and so on. This type of media has a broad target and covers the wider community. Offline interactive multimedia is interactive media that is not delivered through data communication channels. Examples of offline interactive multimedia are interactive CDs: Company Profile, Learning Media. This media target is not too broad and only covers people in certain areas. The use of online and offline interactive multimedia does not always stand alone but can also complement each other (Tanti & Buhalis, 2017).

A multimedia presentation can be represented by a spatial layout and a temporal layout. The spatial and temporal layout needs to be verified so that it can be processed further. (Joel A.F. Dos Santos, Braga, Débora, Roisin, & Layaïda, 2015). Figure 1 is an example of a multimedia representation, in this example, there are 6 multimedia components (A, B, C, D, E, and F) which can be either image, video, text, or animation.

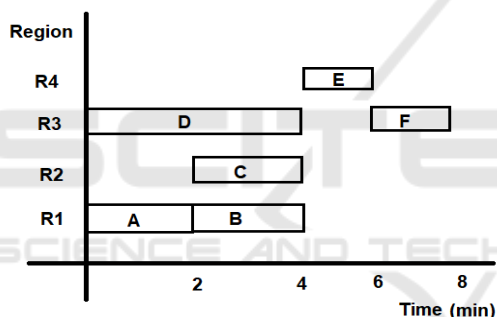


Figure 1: Example of multimedia presentation.

In this example, each multimedia component is located in an area called a region (R1, R2, R3, and R4). The region is a part of a larger area called the root layout as shown in Figure 2.

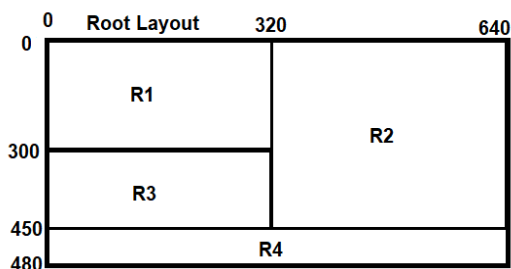


Figure 2: Example of regions.

In Figure 1 it can be seen that component B is played when component A is finished; component E is played when components B, C, and D are finished;

and component F is played when component E is finished. Problems will arise if there are components with no known duration. For example, if component D has no known duration, it will be difficult to determine when component E will start playing as shown in Figure 3. This condition is called a non-deterministic event.

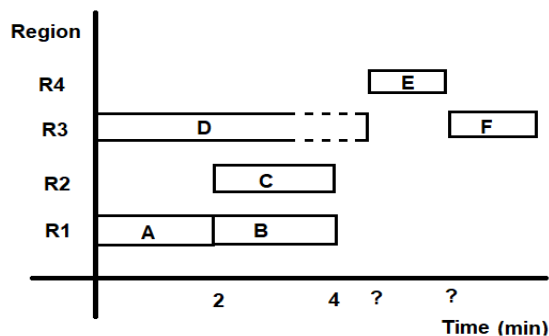


Figure 3: Non-deterministic event.

This problem is often combined with interference from the audience with the button for interaction. Audience input can affect the start, stop, and duration of the multimedia component when it plays. Problems with non-deterministic events and buttons occur frequently and need to be solved.

A multimedia presentation in the form of spatial and temporal layout needs to be processed in several steps so that it can become a multimedia document (Bouyakoub & Belkhir, 2011, 2012). The first stage is to carry out the modeling process. The existing multimedia models in the previous study are Petri Net, Hoare Logic, Language of Temporal Ordering Specifications (LOTOS), Simple Interactive Multimedia Model (SIMM) (De Mattos & Muchalut-Saade, 2018; Mekahlia, Ghomari, Yazid, & Djenouri, 2017; Sampaio & Courtiat, 2004).

Petri net is a model for representing discrete distributed systems. The problem for non-deterministic events is a form of problem that is suitable to be modeled using the Petri net. Petri net is a model that can be modified or have many extensions. Examples of Petri net extensions are as follows: Colored Petri net, Hierarchy Petri Net (Bouyakoub & Belkhir, 2008), vector addition with state (VASS), Dualistic Petri net (dP-nets), and others. So that in this study, modifications will be made to the Petri net to solve the problem of non-deterministic events. This research contributes to modification and applies it to non-deterministic event problems, which the proposed method used is Priority Petri Net.



## 2 RELATED WORKS

A Multimedia Presentation must be processed with the Kernel Mechanism as shown in Figure 4 (Wijaya, Maksom, & Abdullah, 2021b).

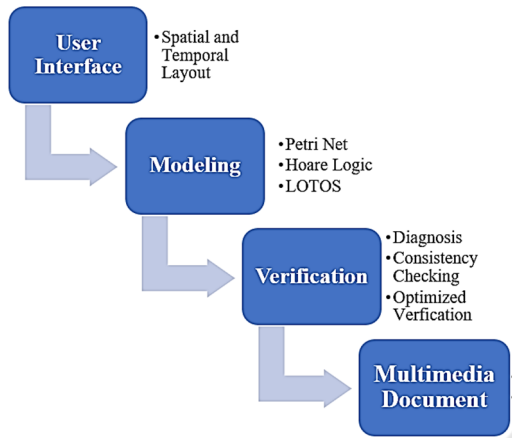


Figure 4: Kernel mechanism.

### 2.1 Petri Net

Petri Net is a multimedia model that is widely used in Multimedia Authoring. Petri Net uses graphics as a representation of multimedia presentations. There are several symbols in Petri Net, namely "arc", "place", "transition", and "token" as shown in Figure 5 (Belkhir & Bouyakoub-Smail, 2007).

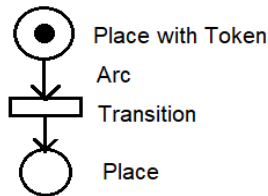


Figure 5: Petri Net symbol.

"Place" is a symbol of the multimedia component in a multimedia presentation. "Transition" is a transition that occurs when a multimedia component ends and another multimedia component starts. "Token" is the status of a place that is currently being played. "Token" will move from "place" to "place", this process is called "Fire". "Arc" connects "place" and "transition" to guide the movement of "token". All these symbols will form a representation of the multimedia document.

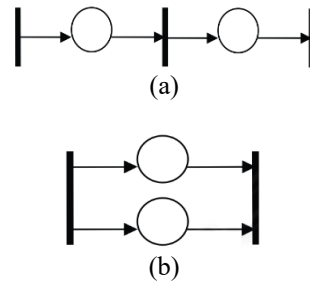


Figure 6: (a) Sequential Petri Net. (b) Parallel Petri Net.

In simple terms, Petri Net is formed sequential and parallel, examples of sequential and parallel images are shown in Figure 6.

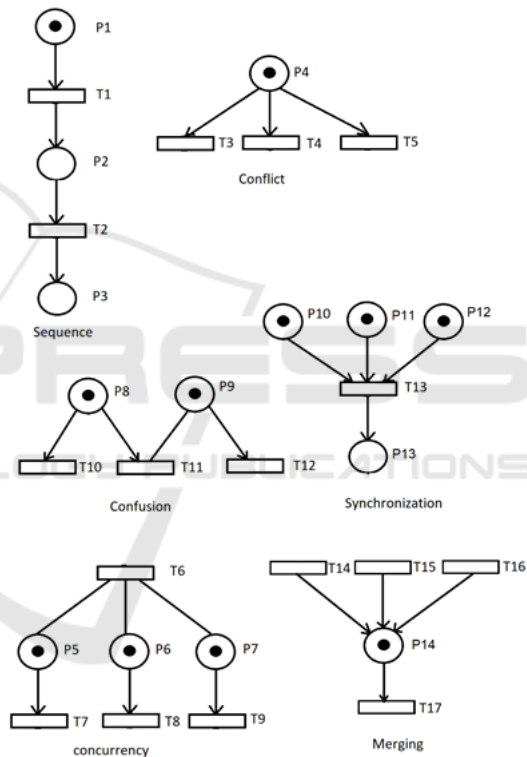


Figure 7: Primitive structure of Petri Net.

For more advanced forms, Petri Net has several forms called Primitive structures such as conflict, confusion, synchronization, concurrency, and merging as shown in Figure 7.

The sequential structure has a clear sequence, token activation from place P1 to place P2 then to place P3 which activates sequentially. Likewise, concurrency structures have a clear form, tokens will move according to the existing transition.

The structure of conflict and confusion has an unclear form, the token in place of P4 activates three transitions, but when one is activated, the other two

transitions are disabled, the token in place of P8 activates T10 and T11, but if T10 is active then T11 becomes inactive. This causes the conditions for the two structures to be similar.

The synchronization structure has a clear form if the process at place P10, place P11, and place P12 has been completed then the three will be synchronized by starting place P13. Meanwhile, the merging structure is not the same as the synchronization structure. In the merging structure, the three transitions T14, T15, T16 do not need to be fired at the same time, or three transitions fire before T17.

In 1998, the use of the Petri Net as a model for multimedia was initiated. The study entitled "A Graphical Interface for creating and playing SMIL documents (GRiNS)" is a Multimedia Authoring Tool that can translate multimedia documents (Bulterman, 1998). In 2005, the Petri Net model was refined and used as a graphics-based multimedia processing paradigm (Bulterman & Hardman, 2005).

Yang Chun Chuan in 2003, made modifications to the Petri Net by simplifying the places that are not synchronized (C. C. Yang & Yang, 2003). For example, if there is a multimedia program like in SMIL:

```
<seq>
  <par endsync=id(V1)>
    <video src=V1/>
    <audio src=A1/>
    <image src=I1/>
  </par>
  <par endsync=id(A2)>
    <video src=V2/>
    <audio src=A2/>
    <image src=I2/>
  </par>
</seq>
```

The Petri Net graph for an example of this program is as shown in Figure 8. In this example there are two parallel groups, in the first group, there are 3 multimedia components, each one video (V1), audio (A1), and image (I1). Likewise, in the second group, each one contains video (V2), audio (A2), and image (I2). The difference is that for the first group the synchronization place is V1, while in the second group the synchronization place is A2.

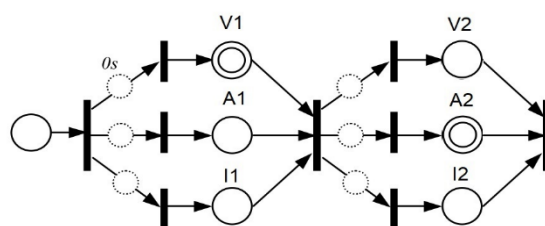


Figure 8: Petri Net model for the example.

Figure 8 can be simplified by eliminating places that are not part of the synchronization. In the first group, the place symbols for A1 and I1 are removed, in the second group the place symbols for V2 and I2 are removed. The result of this simplification is shown in Figure 9. The simplification model is called the Real-Time Synchronization Model (RTSM).

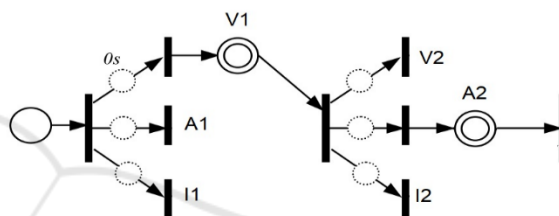


Figure 9: Simplified Petri Net (RTSM).

## 2.2 Non-deterministic Event

Yang Chun Chuan in 2008 conducted a study entitled "Extension of Timeline based Editing for Non-deterministic Temporal Behavior in SMIL 2.0 Authoring", in that study the concept of Dividable Dynamic Timeline (DDTL) was introduced (C. Yang, Chu, & Wang, 2008). In a multimedia presentation, audience interaction is possible. These interactions can take the form of buttons being pressed by the audience. This button functions to change the multimedia components that are played. Examples of multimedia programs that involve interaction from the audience:

```
<seq>
  <par endsync=id(I1)>
    <video src=V1/>
    <Image src=I1 begin=Btn1
      end = Btn2/>
    <Audio src=A1/>
  </par>
  <par end=Btn3> </par>
  .
  .
  .
</seq>
```

In the example program, there is a non-deterministic event with the symbol "?". The scenario of the multimedia presentation is that there is an image component (I1) that becomes the synchronization of a parallel-group. In the group, there are a video (V1), an image (I1), and an Audio component (A1). Component I1 will play if Btn1 is clicked and will end if Btn2 is clicked. After the group ends, it will not proceed to the next group, if the Btn3 button is not clicked. Graph Petri net for this example is shown in Figure 10.

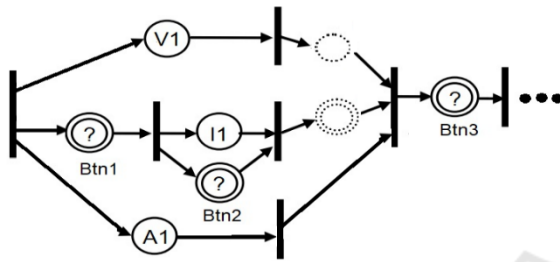


Figure 10: Petri Net with non-deterministic event.

The methods used in dealing with non-deterministic event problems are divide/split operations and merge operations.

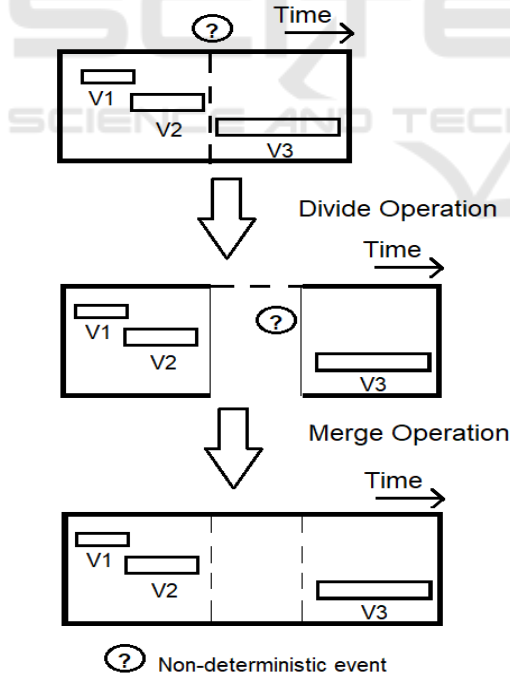


Figure 11: Divide and merge operation.

Figure 11 is an example of DDTL, in this example, there are 3 multimedia components video 1 (V1), video 2 (V2), and video 3 (V3). Between V2 and V3

there is a non-deterministic event, in the DDTL method the divide operation will be carried out first at that point. After the divide operation is performed, it will be connected again using the merge operation.

### 3 METHODS

A multimedia authoring must-have multimedia authoring attributes to function properly. Multimedia Attributes consist of Formal Verification Model, Editing, Services, and Performance. Attribute editing provides convenience for authors to create multimedia presentations such as ease of use and expressivity. Service attributes are facilities provided by multimedia authoring tools to verify so that there are no errors in multimedia documents. Attribute Performance is to provide an overall overview of a multimedia authoring tool. The attribute Formal verification model is a process model of multimedia presentation that is modeled properly (Wijaya, Maksom, & Abdullah, 2021a).

To fulfill the attribute attributes of Multimedia Authoring, it is imperative that multimedia authoring be able to process a multimedia presentation that contains non-deterministic events. This study proposed a method with priority Petri Net to deal with non-deterministic event problems.

#### 3.1 Priority Arc

An "arc" is divided into "Priority Arc" and "Normal Arc". Priority arc is distinguished by a line that is thicker than the normal arc as shown in Figure 12. Priority Arc determines the process of moving tokens from one "place" to the next transition. Normal arc and priority arc function to determine the firing path of the token, but the time the token moving/firing is determined by the priority arc.

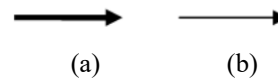


Figure 12: (a) Priority arc. (b) Normal arc.

Priority arc will determine or function as a synchronizer in a parallel-group. Priority arcs can function both in groups where there are no non-deterministic events or in groups where there are non-deterministic events.

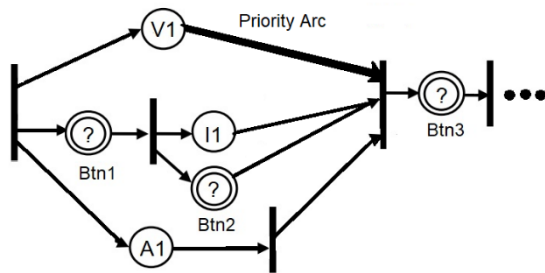


Figure 13: Example 1 of Priority Petri Net.

Figure 13 is the Priority Net graph of example 1 using the priority arc. In this example, the priority arc is on V1, which means that V1 is the determining time for the firing token to occur. Regardless of the lack of pressure on Btn2 by the Audience, this does not interfere with the firing token process in all places in the parallel group.

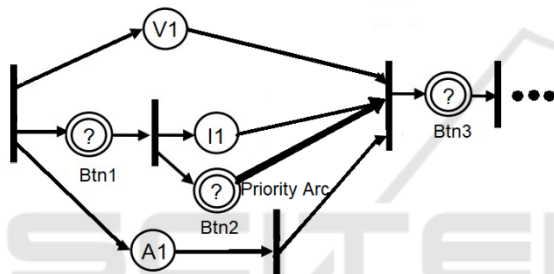


Figure 14: Example 2 of Priority Petri Net.

Figure 14 is the Priority Net graph of example 2 using priority arc. In this example the priority arc is in Btn2, this means that Btn2 is the determining time for the firing token to occur. In this case, pressing the button on Btn2 by the audience will cause a firing token to occur in all places in this parallel group.

Priority Petri Net is defined as six-tuple:

- Transition :  
 $tr = \{tr_1, tr_2, \dots, tr_x\}$  (1)
- Place :  
 $pl = \{pl_1, pl_2, \dots, pl_y\}$  (2)
- Button :  
 $btn = \{btn_1, btn_2, \dots, btn_z\}$  (3)
- Place and button :  
 $pb = pl \cup btn$  (4)
- Normal arc :  
 $na = \{tr \times pb_n\} \cup pb_{tr}$  (5)
- Priority arc :  
 $na = \{tr_n \times pb_p\} \cup pb_{tr}$  (6)

Where :

x = number of transition  
 y = number of places

z = number of buttons  
 n = normal  
 p = priority

Each place has:

- Media identity
- Status: token or no token
- Start time
- End time
- Duration time

Transition ( $tr_x$ ), fires immediately with synchronization of priority arc. Once activated, transition ( $tr_x$ ) will remove tokens from each input place and add tokens to each output place.

By using the Priority Petri Net graph, it is necessary to modify the temporal layout to accommodate the Priority arc and non-deterministic events. The multimedia components contained in the temporal view are divided into regular boxes and thicker boxes. A thicker box indicates that the multimedia component is a priority arc. Likewise for non-deterministic events that need to be marked with a "?" on the multimedia component to indicate the interaction button from the audience.

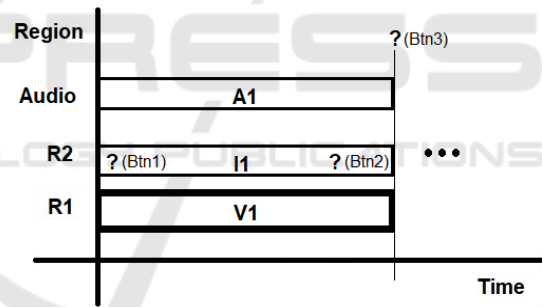


Figure 15: Example 1 of temporal layout.

Figure 15 is an example of 1 temporal layout where priority is given to the video component (V1) as a priority for the parallel group synchronization. The "?" at the beginning and the end of I1 denotes the start button and end button for component I1. The vertical thin line at the end of the group represents the synchronization position. Figure 16 shows example 2 of a temporal layout, to which priority is given to the Btn2 button which will end the play of Image 1.

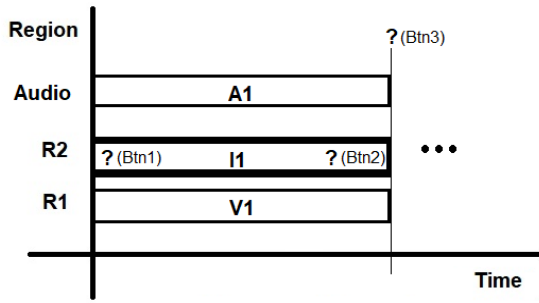


Figure 16: Example 2 of temporal layout.

### 3.2 Implementation Steps

The steps for implementing Priority Petri Pet for non-deterministic events in multimedia presentations are as follows:

- Entering multimedia component data into the system such as start time, end time, and duration.
- Entering non-deterministic event data on the system.
- Entering data on the relationship between multimedia components and non-deterministic events.
- Designing on spatial and temporal layouts.
- Arrangement processing in six tuples of Priority Petri net.

The performance measurement of the implemented model uses CPU execution time. CPU execution time is the total computational time CPU spends on a given task. The formula used for CPU execution time is as follows:

$$T = I \times CPI \times C \tag{7}$$

Where:

T = Execution time per program in seconds

I = Number of instructions executed

CPI = Average CPI for program

C = CPU clock cycle

## 4 RESULTS AND DISCUSSION

Experiments from Priority Petri Net were considered from two aspects, namely the fulfillment of the multimedia authoring attribute (editing attribute) and processing time.

In attribute editing, the method proposed by Priority Petri Net is seen from the temporal layout. The temporal layout is the interface that the author

can access to create a multimedia presentation. The tools considered in the temporal synchronization paradigm are temporal editing, spatial editing, interactivity, presentation view, ordinary use support, priority, and non-deterministic support (De Mattos & Muchaluat-Saade, 2018).

Table 1: Tool comparison.

Temporal Synchronization Paradigm	Tool				
	1	2	3	4	5
Temporal Editing			√	√	√
Spatial Editing	√	√	√	√	√
Interactivity	√	√		√	
Presentation view			√	√	
Ordinary support		√		√	
Priority support					√
Non-deterministic support					√

1 = Composer

2 = NEXT

3 = LimSee2

4 = STEVE

5 = Priority Petri Net

In table 1, it can be seen that in this study, there is more emphasis on the core processes for spatial and temporal layout as well as Priority Support and Non-deterministic support. In multimedia authoring, several attributes need consideration, namely editing, services, performance, and formal verification (Wijaya et al., 2021a). The purpose of this study is to solve the problem of non-deterministic events, so the focus of this study is on editing and support for non-deterministic events. Whereas in other comparison tools, it can be seen that each tool emphasizes the temporal synchronization paradigm which is the focus of its research.

Figure 17 shows the number of temporal synchronization paradigm in each tool. The Composer and NEXT tools emphasize interaction with the author and the spatial editing view. The LimSee2 tool has complete editing features, both temporal and spatial editing views. The LimSee2 tool also has ordinary support and has a presentation view. STEVE tool has a complete feature and has a good interaction with the author. The interface of the STEVE tool also has an attractive appearance. Whereas, this study focused on input from the factor in the form of spatial and temporal layouts and to process non-deterministic events.

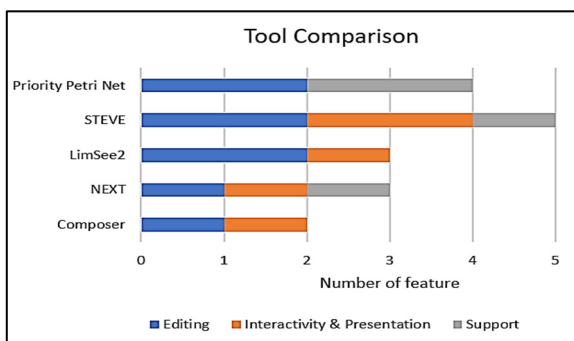


Figure 17: Tool comparison.

Table 2: Experimental time comparison.

Number of Multimedia Components	Petri Net (ms)	Priority Petri Net (ms)	Difference Percentage
5	352	403	14%
10	419	465	11%
15	474	513	8%
20	529	565	7%
25	580	617	6%
30	616	649	5%

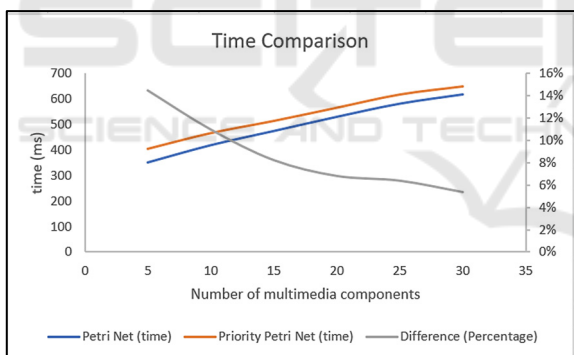


Figure 18: Experimental time comparison between Petri Net and Priority PetriNet.

Table 2 and Figure 18 show the experimental results comparing the processing time between Petri Net and Priority Petri Net. Experiments were carried out using a computer with an Intel® Pentium® CPU 4417U 2.30GHz 4 GB RAM specification. Experiments were carried out by changing the number of multimedia components from 5 to 30. The experimental results show that the processing time on the Priority Petri Net produces a longer processing time than the processing time on the Petri Net. The difference percentage is the difference in processing time on the Petri net and Priority Petri net. With the

increase in the number of multimedia components, the percentage difference in time is getting smaller. Future research can be carried out by making various modifications to the multimedia model to obtain a good process and fast processing time as well.

## 5 CONCLUSIONS

A multimedia authoring that fulfills the multimedia attribute must consider the problem of non-deterministic events. This is because interaction with the audience is very important for an interactive multimedia presentation. The process of multimedia authoring is to use a multimedia model, which is currently widely used in the Petri Net model. A Petri Net can be modified into a Priority Petri Net to handle non-deterministic event problems. Experimental results on Priority Petri Net produce multimedia authoring that can handle non-deterministic events, but the processing time required is a little longer.

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