

International Conference of Artificial Intelligence and Information Technology 2019 (ICAIT)

(IEEE International Conference #45307)

Message from Conference Chair

Dear professors and distinguished delegates,

It is our great honor and pleasure to welcome you to 2019 International Conference on Artificial Intelligence and Information Technology to be held in Platinum Adisucipto Hotel & Conference Center, Yogyakarta, Indonesia during March 13-15, 2019. ICAIT 2019 is hosted by Universitas Atma Jaya Yogyakarta and Kalbis Institute Jakarta and also supported by Universitas Pancasila Jakarta. The objective of ICAIT 2019 is to bring together researchers, scientists, academics, and engineers in area of Artificial Intelligence and Information Technology from all over the world, who share much more than technical interests, among another things, like culture and history, etc.

We wish to express our sincere appreciation to all individuals and organizations who have contributed to ICAIT 2019. We extend our heartfelt gratitude to our colleagues in technical program committee for their thorough review of all the submissions, which is vital to the success of the conference, and also to the members in the organizing committee and the volunteers who had dedicated their time and efforts in planning, promoting, organizing, and helping the conference. Our special thanks also go to the invited speakers as well as all the authors for contributing their latest research to the conference.

This conference program is highlighted by four invited keynote & plenary speakers: Associate Professor Wladyslaw Homenda from Warsaw University of Technology, Poland; Prof. Andrea Corradini from Copenhagen School of Design and Technology, Denmark; Wu Hai Yong, Ph.D. from Nanjing Xiaozhuang University, China; Dr. Suryadiputra Liawatimena from Universitas Bina Nusantara, Indonesia.

We strongly believe that the conference will provide you a memorable experience, and we do wish all of you have a good time in Yogyakarta, Indonesia.

Best regards
Your sincerely,

Yulius Denny Prabowo, S.T., M.T.I. and Martinus Maslim, S.T., M.T.
General Chair of ICAIT 2019

Welcome Speech from The Indonesia Section Computer Society Chapter Chair

On behalf of The Indonesia Section Computer Society Chapter Chair, we are pleased to welcome you all to The 2019 International Conference of Artificial Intelligence and Information Technology (ICAIT 2019), March 13-15 2019, at Yogyakarta, Indonesia. The conference which is held by Informatics Engineering Department of Universitas Atma Jaya Yogyakarta and Kalbis Institute aims to establish a platform and to provide opportunities for researchers and academicians from all over the world to present the research results, ideas, and knowledge related to the latest issues of Artificial Intelligence and Information Technology. The conference will encourage the delegates to exchange the ideas and experiences, to collaborate in the future business and research, and to empower the nation.

We strongly believe that this conference will provide an excellent platform to exchange research ideas and findings. We hope that ICAIT 2019 will definitely give its participants, both young and experienced researchers, the opportunity to explore new areas of research, enhance their current knowledge and understanding of the scope of Artificial Intelligence.

ICAIT 2019 invited full papers from academia, industries and research centers around the world. A total of 276 submissions were received and reviewed through our expert reviewers' panel. The technical program committee comprised which as external reviewers are 44. Each paper was reviewed by at least two or more reviewers. We would like to thank all the reviewers for their great efforts and valuable time. After a rigorous review based on novelty and technical merit, only 105 full papers (out of 276 with the acceptance rate of about 38%). We would like to thank all the authors for submitting their articles in ICAIT 2019.

The conference features keynote speeches from three esteemed researchers: Keynote speaker from Associate Professor Wladyslaw Homenda (Warsaw University of Technology, Poland), Prof. Andrea Corradini (Copenhagen School of Design and Technology, Denmark), Wu Hai Yong, Ph.D. (Nanjing Xiaozhuang University, China) and Dr. Suryadiputra Liawatimena (Universitas Bina Nusantara, Indonesia). We would like to thank all the keynote and invited speakers for attending this conference and giving excellent talks.

ICAIT 2019 could not be successful without sincere efforts of its organizing members. We thank the members of the organizing committee. We also thank its program committee members and advisory members for their continuous supports. We would specially like to thank IEEE Indonesia Section. We also would like to thank Informatics Engineering Department of Universitas Atma Jaya Yogyakarta and Kalbis Institute. We hope that ICAIT 2019 would bring opportunities to share your knowledge. We wish all the success of this conference.

Dr. Suryadiputra Liawatimena
The Indonesia Section Computer Society Chapter Chair

Welcome Speech from Dean of Industrial Technology Faculty, Universitas Atma Jaya Yogyakarta

To all Speakers and Participants of ICAIT 2019

Since 2012, the Department of Informatics Engineering of Universitas Atma Jaya Yogyakarta (UAJY) has held a National Seminar on Information and Communication Technology SENTIKA. Now the Department of Informatics Engineering UAJY is collaborating with the Kalbis Institute to hold an International Conference on Artificial Intelligence and Information Technology ICAIT 2019 with the theme of Artificial Intelligence and Implementation.

As we know that the development of information technology is very fast, especially now that we are in the era of industry 4.0. There are several key technologies to support the fourth industrial revolution, including Big Data, Cloud Computing, Internet of Things, System Integration, Cyber Security, Additive Manufacturing and Autonomous Robots. These technologies require artificial intelligence to build the smart system. Therefore, choosing the theme of Artificial Intelligence and Implementation is very appropriate for this conference.

This conference can be held for contributions from various parties. For this reason, on behalf of the Industrial Technology Faculty UAJY we would like to offer our gratitude to the following distinguished speakers:

1. Prof. Andrea Corradini, Copenhagen School of Design and Technology, Denmark.
2. Associate Professor Wladyslaw Homenda, Warsaw University of Technology, Poland.
3. Wu Hai Yong, Ph.D., Nanjing Xiaozhuang University, China.
4. Dr. Suryadiputra Liawatimena, Universitas Bina Nusantara, Indonesia.

We also appreciate all the presenters and participants for your participation in this conference. Hopefully through knowledge sharing and discussion can inspire the development and implementation of artificial intelligence technology so as to provide greater benefits for improving the quality of human life. Have a good conference. Good luck.

Yogyakarta, March 2019

Dr. A. Teguh Siswanto
Dean of Industrial Technology Faculty, Universitas Atma Jaya Yogyakarta

Welcome Speech from Rector of Universitas Atma Jaya Yogyakarta

To all Speakers and Participants of ICAIT 2019

The machines haven't taken over our life as a whole. Not yet, at least. However, they are seeping their way into almost every part of our life, affecting how we live, work and entertain ourselves. Penetration of influence can be witnessed from voice-supported personal assistants such as Siri and Alexa, which is equipped with Speech Synthesis Markup Language (SSML), to more underlying and fundamental technologies such as behavioral algorithms, suggestive searches and autonomously-powered self-driving vehicles boasting powerful predictive capabilities.

Besides Siri and Alexa, there are several examples and applications of artificial intelligence that are used today, such as: 1. Tesla (this is quite possibly one of the best cars ever made); 2. cogito (is quite possibly one of the most powerful examples of behavioral adaptation to improve the emotional intelligence of customer support representatives that exists on the market today); 3. Boxever (machine learning to improve the customer's experience in the travel industry and deliver 'micro-moments,' or experiences that delight the customers along the way); 4. John Paul (a highly-esteemed luxury travel concierge company, is another powerful example of potent A.I. in the predictive algorithms for existing-client interactions, able to understand and know their desires and needs on an acute level); 5. Amazon.com (Amazon's transactional A.I. is something that's been in existence for quite some time, allowing it to make astronomical amounts of money online); 6. Netflix (Netflix provides highly accurate predictive technology to suggest films that you might like based on your previous reactions and choices of films); 7. Pandora (Pandora's A.I. is quite possibly one of the most revolutionary techs for recommending songs that would otherwise go unnoticed but that people inherently love); 8. Nest (This learning thermostat that was acquired by Google uses behavioral algorithms to predictively learn from your heating and cooling needs).

A true artificially-intelligent system is one that can learn on its own. That type of A.I., the kind that we see in wonderful stories depicted on television through the likes of HBO's powerful and moving series, *Westworld*, or Alex Garland's, *Ex Machina*, are still way off. This will be at the hands of artificial intelligence. A.I. will also become smarter, faster, more fluid and human-like, thanks to the inevitable rise of quantum computing. Quantum computers will not only solve all of life's most complex problems and mysteries regarding the environment, aging, disease, war, poverty, famine, the origins of the universe and deep-space exploration, just to name a few, it'll soon power all of our A.I. systems, acting as the brains of these super-human machines.

ICAIT 2019 is an expression of UAJY's excellent and humanistic value. It is as well an expression of mutual concern for those who are in need and are very interested in the development of science, opening themselves to the widest possible range of all groups of knowledge in a pluralistic Indonesia. This international seminar embraces the theme: "Artificial Intelligence and it's Implementation" as it relates that nowadays all fields of life

have been penetrated by information technology, especially “smart” information technology. As intelligent computers are significant field of research in technology, scientific discussions that address the implementation of artificial intelligence are suitable topics for this international program.

As the Rector of UAJY, I hope that ICAIT 2019 will be the first step for a continuing and productive collaboration to bring progress in the advancement of Artificial Intelligence in serving and caring for the interests of mankind along with upheld values of humanity, as Albert Einstein affirms, "The human spirit must prevail over technology ". Once again, I would like to wish you a successful conference.

Dr. Gregorius Sri Nurhartanto, SH. LL.M.
Rector of Universitas Atma Jaya Yogyakarta

Welcome Speech from Rector of Kalbis Institute, Indonesia

Greetings from Jakarta,

On behalf of Kalbis Institute, I would like to thank you for being here with us today. We are very pleased to be able to welcome you at the 1st International Conference of Artificial Intelligence and Information Technology 2019 (ICAIT 2019). Before we get started, may I express my sincere gratitude to our chairs, sponsors, program chairs, technical committee members, organizing committee members, authors and delegates, who made a lot of efforts and contributions. Thanks to your support and help, we could not be able to hold this conference successfully without you.

You have been chosen to be a part of our conference, to a mutual passion for academic research inquiry. We are grateful to have you join us at the 1st International Conference of Artificial Intelligence and Information Technology 2019 (ICAIT 2019).

During the next few days, we will learn about the different initiatives through our planned activities, seminar, and special events where you will be able to join in and get hands on experiences. I hope these will help us to grow better and more productive in knowledge development.

Wish you will enjoy this conference, contribute effectively toward it and take back with you all the knowledge, experiences, contacts and happy memories of these days.

Thank you for your attention!

Yours sincerely,

Ir. Sablin Yusuf, M.Sc., M.Comp.Sc.
Rector of Kalbis Institute, Indonesia

Special Region of Yogyakarta



In Javanese it is pronounced [jogja'kartɔ], and named after the city of Ayodhya in Javanese-Hindu mythology. The Dutch name of the Special Region is **Djokjakarta**.

The Sultanate has existed in various forms through prehistory, and survived through the rule of the Dutch and the 1942 invasion of the Dutch East Indies by the Japanese Empire. In August 1945 Indonesia's first president, Sukarno proclaimed the independence of the Indonesian Republic, and by September of that year, Sultan Hamengkubuwono IX and duke Sri Paku Alam VIII had sent letters to Sukarno expressing their support for the newly-born nation of Indonesia, in which they acknowledged the Yogyakarta Sultanate as part of the Indonesian Republic. The Sunanate of Surakarta did the same, and both of the Javanese kingdoms were awarded special status as special regions within Indonesian Republic. However, due to a leftist anti-royalist uprising in Surakarta, the Sunanate of Surakarta lost its special administrative status in 1946 and was absorbed into the province of Central Java.

Yogyakarta's overwhelming support and the Sultan's patriotism were essential in the Indonesian struggle for independence during the Indonesian National Revolution (1945-1949). The city of Yogyakarta became the capital of the Indonesian Republic from January 1946 to December 1948 after the fall of Jakarta to the Dutch. Later, the Dutch also invaded Yogyakarta causing the Indonesian Republic's capital to be transferred again to Bukittinggi in West Sumatra on 19 December 1948. In return for Yogyakarta's support, the declaration of Special Authority over Yogyakarta was granted in full in 1950 and Yogyakarta was given the status as a Special Administrative Region, making Yogyakarta the only region headed by a monarchy in Indonesia.

The Special Region was struck by a 6.3-magnitude earthquake on 27 May 2006, killing 5,782 people, injuring approximately 36,000 and leaving 600,000 people homeless.^[7] The region of Bantul suffered the most damage and deaths.

The Special Region is located near the southern coast of Java, surrounded on three sides by the province of Central Java, and with the Indian Ocean on the south side. The population at the 2010 Census was 3,452,390 people, but according to the latest official estimate (January 2014) has risen to 3,594,290. It has an area of 3,133.15 km², making it the second-smallest area of the provinces in Indonesia, after the Jakarta Capital Region. Along with surrounding areas in Central Java, it has some of the highest population densities of Java.

Mount Merapi is located to the immediate north of the city of Yogyakarta and Sleman Regency. It is the most active volcano in Indonesia and has erupted regularly since 1548. It last erupted in October–November 2010, killing and injuring many people and temporarily displacing approximately 100,000 residents.^{[8][9]}

Indonesia has numbers of geo-heritage sites in Yogyakarta Special Region. It has been declared by Geological Agency of the Energy and Natural Resources Ministry. The sites consists of 9 sites: Eosen limestone in Gamping (Sleman regency), pillow lava in Berbah (Sleman), pre-historic volcanic sediment in Candi Ijo, Prambanan (Sleman), sand dunes in Parangtritis Beach (Bantul regency), Kiskendo cave and former manganese mining site in Kleripan (Kulonprogo regency), the prehistoric volcano in Nglanggeran (Gunungkidul regency), Wediombo-Siung beaches (Gunungkidul) and Bioturbasi site in Kalingalang (Gunungkidul). The most unusual one is pillow lava in Berbah (Sleman) which is a big, rough black rock lays on the bank of narrow Dengkeng River. The prehistoric volcano in Nglanggeran (Gunungkidul regency) has already been developed as a tourist destination.

Located within the Special Region of Yogyakarta, the city of Yogyakarta is known as a center of classical Javanese fine art and culture such as batik, ballet, drama, music, poetry and puppet shows. It is also one of Indonesia's most renowned centers of higher education. At the city's center is the Sultan's palace called the *kraton*. While the city sprawls in all directions from the kraton, the core of the modern city is to the north.

Yogyakarta is served by Adisucipto International Airport. There are two train stations: Lempuyangan and Yogyakarta (also called Tugu station). Yogyakarta is considered one of the major hubs that links the west-east main railway route in Java island. Tugu railway station is the main train station located in center, and Lempuyangan train station is the second train station in the city. The two stations have own schedule from and to other cities in Java island. To the south, in the Bantul region, is the Giwangan bus station, the largest bus station in Indonesia. The centre of metropolitan Yogyakarta is surrounded by a ring road.

Yogyakarta is home to more than 100 institutions of higher education in Indonesia, the highest number of higher education institutions of any province in Indonesia. Hence, Yogyakarta earned its nickname "Kota Pelajar" (The City of Students).

Yogyakarta is the home of the first established state university in Indonesia, the Gadjah Mada University.

The Special Region is also the home of the first-established private university in Indonesia, the Islamic University of Indonesia, which was founded in 1945. The Indonesia Institute of Arts, the first-established university in fine arts, is also in the region. Other large universities include Universitas Atma Jaya Yogyakarta, State Islamic University of Yogyakarta, University of Sarjanawiyata Tamansiswa in Yogyakarta, Yogyakarta State University, and Muhammadiyah University of Yogyakarta.

Universitas Atma Jaya Yogyakarta

Universitas Atma Jaya Yogyakarta (UAJY) is a private higher education institution that was founded by the common catholic followers and managed by Slamet Rijadi organization – Yogyakarta, supported by Saint Albert Magnus. Universitas Atma Jaya Yogyakarta was founded in 1965, 26th of September, to participate in improving our country through education means, that is globally oriented.

Since august 31st 1973, Yogyakarta branch of Indonesia University of Catholic Atma Jaya separate itself from Indonesia University of Catholic Atma Jaya Jakarta, and stand by itself as **UNIVERSITAS ATMA JAYA YOGYAKARTA**

The name Atma Jaya came from Sanskrit. Atma means spirit, and Jaya means superior or excellent; thus Atma Jaya means superior spirit. UAJY's dream has always been establishing higher education based on morale values.

UAJY currently has 6 faculties with 11 undergraduate programs and 5 postgraduate program, including 4 international class for the undergraduate program, with a number of students approximately 11,307 students; supported by 6 professor, 58 doctor, 206 master and 6 graduates as permanent lecturer. UAJY is also supported by lecturers from specialist to professionals in their own field, local and also internationally. All undergraduate and postgraduate programs have been accredited by BAN-PT (Badan Akreditasi Nasional Perguruan Tinggi ;national higher education accreditation organization).

Develop academic community in a smart and critical way to help protect and improve human values and also cultural heritage through education, research and also other services that are given to local community, national and also internationally with the spirit of *serviens in lumines veritatis* (service in the light of truth).

UAJY will always give its efforts in creating a culture in organization that is capable in building a community with human resources that have the capability and high commitment in accordance to the vision and mission of the university, and alumni that is capable in competing not only nationally but also internationally. The university will also put its effort in creating a network of cooperation with other party in national and also international level.

The development of UAJY cannot be separated from the development of the city of Yogyakarta.

With a relatively safe and peaceful environment, Yogyakarta is the most appropriate choice for high school graduates students in search of knowledge for the development of their future quality of life. Supported by relatively low living cost, and also supporting facility such as books shops, public library, transportation, communication, recreational place, dormitory, hospital and many more.

UAJY is located in a strategic location that will ease the students in fulfilling their needs. Students of UAJY will be able to socialize with students from other universities with different background easily. This is the factor that will prepare the students to be able to survive in the society.

As a catholic university, UAJY runs its education process in catholic beliefs. In that effort, UAJY will always strive for academic excellence and option for the poor, and produce graduates that have the spirit and courage in becoming “Men and Women for Others”. On top of that, UAJY will be a university as an alternative for higher education due to its excellence and supported by its human resources that are committed, and capable in handling and managing the university.

With its slogan *Serviens in lumine veritatis* which means service in the light of truth, UAJY is ready to prepare the future of its students.

KALBIS Institute

KALBIS Institute is a private university located in Jakarta, Indonesia. KALBIS Institute is under the auspices of the Yayasan Pendidikan KALBE (YPK) and collaborating with Bina Nusantara Education Foundation (BINUS) for its higher education management.

KALBIS Institute was established by Yayasan Pendidikan KALBE (YPK) in 1992 under the name STIE KALBE and opened diploma in Finance and Banking and Accounting. In 1996, STIE KALBE developed by adding bachelor program in Management and Accounting. The next two years, the master program in Management was added. In 2002, STIE KALBE changed its name to STIE SUPRA.

In 2011, the KALBE Education Foundation (YPK) collaborated with Bina Nusantara (BINUS) and changed the name of ITBK to KALBIS Institute. In 2012, the Kalbe Education Foundation built a new campus located at Jalan Pulomas Selatan Kav. 22, East Jakarta.

Keynote Speaker

Professor Andrea Corradini (Copenhagen School of Design and Technology, Denmark)

With Speech Title: Multimodal Data Analysis



Andrea Corradini studied mathematics at the University of Trento, Italy.

He received his Ph.D. in computer science from the Department of Neuroinformatics and Cognitive Robotics at the Technical University of Ilmenau, Germany.

After his PhD, Dr. Corradini held the position of senior research associate at the Center for Human-Computer Communication at the Oregon Graduate Institute of Science and Technology, Oregon, USA.

Later, he took on faculty positions at different institutions like e.g.

- the University of Southern Denmark,
- the IT University of Copenhagen,
- the University of Copenhagen,
- the Estonian IT College, and
- the Kolding Design School.

For two years, he was a Marie Curie Fellowship at the Department of Computational Linguistics at the University of Potsdam in Germany.

He was the first professor in Welfare Design in Denmark.

Currently, he is at the Copenhagen School of Design and Technology and the University of Liverpool.

His research interests include multimodal interaction, natural language processing, gesture/face recognition and analysis, embodied conversational characters and interactive computer games.

Keynote Speaker

Associate Professor Władysław Homenda (Warsaw University of Technology, Poland)

With Speech Title: Cognitive Maps for Time Series Modeling



Mr Władysław Homenda received the M.Sc. and Ph.D. degrees from Warsaw University of Technology, Warsaw, Poland, and the D.Sc. degree from the System Research Institute of Polish Academy of Sciences, Poland, in 2008.

He is currently an Associate Professor with the Faculty of Mathematics and Information Science, Warsaw University of Technology.

He is also with the Faculty of Economics and Informatics in Vilnius, University of Bialystok, Lithuania.

He collaborates with the System Research Institute, Polish Academy of Sciences, where he has conducted several research grants.

His main research interests include theoretical foundations of computer science, knowledge representation and processing and intelligent computing technologies, specifically in the areas of man-machine communication and human-centric computing, fuzzy modelling and granular computing, knowledge discovery, and data mining. He has published many papers in these areas.

His academic activities are related to mathematical aspects of computer science: mathematical linguistic, complexity theory, computability etc. He has authored five monographs covering various aspects of his research and academic activities. He has also authored several technologies related to music information processing, which were applied in prototype and commercial computer programs. He has been intensively involved in reviewing activities of several journals and many international conferences in his areas of interest. He has received numerous awards for his research.

He currently serves as a member of several Editorial Boards of international journals and is a member of scientific and steering committees of many international conferences.

Keynote Speaker

HAIYONG WU, Ph. D (School of Information Engineering, Nanjing Xiaozhuang University)

With Speech Title: Deep Learning in Tractography



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EDUCATION

Southeast University, Nanjing, China

Ph.D. in Computer Science and Technology, 06/2014

Major Area: Image analysis, Image retrieval, Pattern recognition

Advisor: Dr. Huazhong Shu

Nanjing University of Aeronautics and Astronautics

M.S. in Communication and Information Systems, 06/2003

Major Area: Digital signal processing, Circuit Design.

Advisor: Dr. Jie Cao

Jiangsu Normal University

B.S.; Physical Education; September, 06/1997

RESEARCH EXPERIENCE

The University of North Carolina at Chapel Hill

Visiting scholar; The IDEA group and MIND Lab in the Department of Radiology and the Biomedical Research Imaging Center (BRIC), School of Medicine.

06/2017 ~ 10/2017

- Major Area: Longitudinal infant global tractography.
- Advisor: Dr. Dinggang Shen and Dr. Pew-Thian Yap

09/2014 ~ 09/2015

- Major Area: Parallel accelerate the global tractography.
- Advisor: Dr. Dinggang Shen and Dr. Pew-Thian Yap

Woosong University, South Korea.

Visiting scholar, School of Information Technology.

12/2002 ~ 03/2003

- Major Area: IT new technology in operate system and network

RESEARCH INTEREST

- The construction of feature descriptors and feature invariants in object recognition
- Image fusion technology for enhancing remote satellite imaging.
- Diffusion weighted MRI and tractography, Human Brain Connectome.

PUBLICATIONS:

- [1] Haiyong Wu. Teaching 'iOS Programing' Based on a Single Project. Journal of Educational Technology, 16 (2017): 30-31.
- [2] Haiyong Wu, Senlin Yan. Invariants of Tchebichef Moments for Shape Based Image Retrieval. Neurocomputing 215 (2016): 110-117.
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- [9] Jieyu Zhang, Haiyong Wu, Chen S, et al. The Target Tracking Method Based on Camshift Algorithm Combined with SIFT. Advanced Materials Research, 2011, 186:281-286.
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- [11] Haiyong Wu, Huazhong Shu, Hui Zhang, Liming. Luo, Rotation Invariants of Tchebichef Moments Derived from Falling Factorial (in Chinese), China Journal of Image and Graphics, 2010, 46(7), 417-421.
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Acta Optica Sinica, 2009, 29(12):3374-3378.

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- [16] Haiyong Wu. Image Analysis via Bivariate Hahn Moments (in Chinese), Computer Engineering and Applications, 2008, 44(33): 167-169.
- [17] Senlin Yan, Longqing He, Haiyong Wu, Haijun Wang. Studies on Methods of Polarization Controlling Chaos in Dual-Ring Er-doped Fiber Lasers. Acta Photonica Sinica (in Chinese), 2005, 34(2): 191-194.
- [18] Senlin Yan, Longqing He, Haiyong Wu, Qing Luo. Studies on Method of Phase-Shift Controlling Chaos for Dual-Ring Erbium-Doped Fiber Lasers (in Chinese) . Chinese Journal of Lasers, 2005, 32(5):642-646.

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WORKING EXPERIENCE:

1. Nanjing Xiaozhuang University, China. 08/1997 - present
2. Woosong University, South Korea, 05/2004 – 02/2005

TEACHING EXPERIENCE:

Nanjing Xiaozhuang University, Nanjing, China

Assistant Professor, 1997-2003

Lecturer, 2004-2008

Associate Professor, 2009-present

- Lectured on iOS application programming, 2016-present
- Lectured on Fundamental of Electrical and Electronic Technology, 2006-present
- Lectured on FPGA Design using VHDL, 2001-2013
- Lectured on C/C++ programming, 1998-2009
- Lectured on Digital Signal Processing & Processor, 2003-2008

PROFILE:

- Matlab and C/C++ programming experience for more than 10 years
- Circuit design experience for more than 10 years
- Willing to perform basic tasks and move on to solve complex problems
- Able to learn new knowledge and adapt to new environments quickly
- Strong independent work style and excellent teamwork skills
- Well-organized and passionate

Keynote Speaker

Dr. Suryadiputra Liawatimena, S.Kom., PgDip.App.Sci (Universitas Bina Nusantara, Indonesia)

With Speech Title: Artificial Intelligence in Agriculture & Fishery



PROFILE

1	Nama Lengkap (dengan gelar)	Suryadiputra Liawatimena, Dr., S.Kom., PgDip.App.Sci
2	Jenis kelamin	Laki-laki
3	Jabatan Fungsional	Faculty Member
4	Jabatan Struktural	Embedded Research Interest Group Leader
5	NIP/NIK/No.Identitas lainnya	D1026
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11	Nomor Telepon/Faks	021-534.5830 / 021-530.0244
12	Lulusan yang telah dihasilkan	S-1 = 674, S-2 = 5
13	Alamat Rumah	Jl. Crystal Timur 2 No 36. Gading Serpong. Tangerang. 15810
14	Mata Kuliah yang diampu	Assembly Language Sistem Digital Interfacing Mikroprosesor Aplikasi Mikroprosesor Pengantar Teknologi Informasi Rekayasa Sistem Komputer Arsitektur dan Organisasi Komputer Perancangan Komputer Mekatronika Seminar Penelitian Metodologi Penelitian Computer System Development and Methodology Sensors and Actuators IT Services Services Oriented Architecture (SOA)

EDUCATION

	S1	S2
Nama Perguruan Tinggi	STMIK Bina Nusantara, Jakarta	Edith Cowan University, Perth
Bidang Ilmu	Teknik Komputer	Computer Studies
Tahun Masuk	1987	1992
Tahun Lulus	1991	1996
Judul Skripsi	Perancangan Modifikasi Mesin Tik Elektronik Samsung Daisy Wheel SQ-1000 Sebagai Printer	Application of Trellis-coded quantization (TCQ) for speech coding.
Nama Pembimbing/ Promotor	Ir. Budi Surjatmadji	Dr. Hon Nin Cheung Dr. Thomas O'Neill

	S3
Nama Perguruan Tinggi	Curtin University of Technology, Perth
Bidang Ilmu	Science Education
Tahun Masuk	1997
Tahun Lulus	2005
Judul Skripsi	The development, validation and application of an electronics laboratory environment inventory in Indonesia
Nama Pembimbing/ Promotor	Prof. Darrell Fisher Prof. David D. Treagust

RESEARCH EXPERIENCE

No	Tahun	Judul Penelitian	Pendanaan	
			Sumber	Jml (Juta Rph)
1	2019	Perancangan Algoritma Untuk Pengenalan Ikan Cakalang, Tongkol dan Lemadang Otomatis Hasil Tangkapan Nelayan Huhate Di Bitung, Manado	Dikti	107
2	2019	Perancangan Sistem Otomasi Hidroponik Terpadu Menggunakan Real Time OS berbasis Mikrokontroler ARM Cortex-M (Tahun ke 3)	Dikti	75
3	2018	Perancangan Sistem Otomasi Hidroponik Terpadu Menggunakan Real Time OS berbasis Mikrokontroler ARM Cortex-M (Tahun ke 2)	Dikti	75
4	2017	Perancangan Sistem Otomasi Hidroponik Terpadu Menggunakan Real Time OS berbasis Mikrokontroler ARM Cortex-M (Tahun ke 1)	Dikti	75
5	2016	Perancangan Sistem Otomasi Hidroponik Terpadu Menggunakan Real Time OS berbasis Mikrokontroler ARM Cortex-M	Dikti	75
6	2016	Perancangan Authoring Tool Untuk Learning Object Berbasis HTML 5	Universitas Bina Nusantara	10
7	2015	Sistem Penjejak Kendaraan Bermotor dengan GPS dan	Universitas	10

		Sensor Akselerometer di Jakarta	Bina Nusantara	
8	2014	Aplikasi Sensor Untuk Implementasi Kecerdasan Tertatam Prediksi Cuaca Jakarta	Universitas Bina Nusantara	10

COMMUNITY SERVICES

No	Tahun	Judul Pengabdian Pada Masyarakat	Pendanaan	
			Sumber	Jml (Juta Rph)
1	2019	Pengenalan Teknologi Berbasis Elektronika untuk Pendidikan Anak Sekolah Dasar	Sekolah Dian Harapan	3
2	2019	QBoat Sunny Internet of Things Workshop	Qnap Indonesia	10
3	2018	Forum Group Discussion (FGD) Internet of Things, Pemerintah Daerah Kota Tangerang, 31 Oktober 2018	Pemerintah Kota Tangerang	6
4	2018	Workshop Computer Science dan Information Systems, 17 Januari 2018	STMIK Banjarmasin	6
5	2018	Seminar Computer Science dan Information Systems, 16 Januari 2018	STMIK Banjarmasin	6
5	2017	Workshop Penulisan Artikel Ilmiah Internasional Pada Universitas Potensi Utama, 15 November 2017	Universitas Potensi Utama	5,6
6	2016	Instruktur, BiNus School – Science Fair, 18 November 2016	Universitas Bina Nusantara	6
7	2016	Instruktur pada Workshop Penelitian Tindakan Kelas: Laporan dan Publikasi Penelitian Tindakan Kelas, April 2016	Universitas Bina Nusantara	6
8	2015	Instruktur pada Workshop Robotics SMA NEGERI 2 TANGERANG SELATAN (Introduction to AVR), Mei 2015	Universitas Bina Nusantara	6

PUBLICATIONS

No.	Tahun	Judul Artikel Ilmiah	Volume/ Nomor	Jurnal
1	2017	Vehicle Tracker with a GPS and Accelerometer Sensor System in Jakarta	Vol 9/ No 2	Internetworking Indonesia Journal
2	2017	Development of Mobile Learning in Faculty of Economics, Bina Nusantara University	Vol 8/ No 3	Jurnal ComTech
3	2016	Implementation Of Information Technology Service Management At Data And Information System Center of XYZ	Vol 7/ No 1	Jurnal ComTech

		University		
4	2016	Information Technology Services Implementation in Software Laboratory Center Bina Nusantara University	Vol 14/ No 1	Jurnal Sains, Teknologi dan Industri

CONFERENCES

No .	Nama Pertemuan Ilmiah/Seminar	Judul Artikel Ilmiah	Waktu dan Tempat
1	2018 Indonesian Association for Pattern Recognition International Conference (INAPR)	A Fish Classification on Images using Transfer Learning and Matlab	Tangerang, 7 September 2018
2	2018 Indonesian Association for Pattern Recognition International Conference (INAPR)	Django Web Framework Software Metrics Measurement Using Radon and Pylint	Tangerang, 7 September 2018
3	3rd International Conference on Computer Science and Computational Intelligence 2018	Hypermedia Driven Application Programming Interface for Learning Object Management	Tangerang, 8 September 2018
4	2017 IEEE International Conference on Cybernetics and Computational Intelligence (CyberneticsCom)	Automating functional and structural software size measurement based on XML structure of UML sequence diagram	Phuket, 20 November 2017
5	The 2nd International Conference on Eco Engineering Development (ICEED 2018)	Hydroponic nutrient mixing system based on STM32	Tangerang, 5 September 2018
6	2017 5th International Conference on Cyber and IT Service Management (CITSM)	A study of Information Technology Infrastructure Library (ITIL) framework implementation at the various business field in Indonesia	Denpasar, 8-10 Augustus 2017
7	International Conference on Eco Engineering Development (ICEED 2017)	Hydroponic System Design with Real Time OS Based on ARM Cortex-M Microcontroller	Yogyakarta, 14 November 2017
8	2015 Third International Conference on Artificial Intelligence, Modelling and Simulation	Design of an Integrated Fish Auction System in Indonesia Using RFID	Kota Kinabalu, Malaysia, 2-4 Desember 2015

APPRECIATION

No.	Jenis Penghargaan	Institusi Pemberi Penghargaan	Tahun
1	Indonesia Section Computer Society Chapter Chair	IEEE Indonesia Section	2017
2	Long Service Year Award (28.8 years)	Bina Nusantara University	2016

**International Conference of Artificial Intelligence and Information
Technology 2019 (ICAIT)**
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(IEEE International Conference #45307)

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- Teny Handhayani, S.Kom, M.Kom (Tarumanagara University, Indonesia)

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International Conference of Artificial Intelligence and Information Technology 2019 had been listed at IEEE Conference number 45307 (https://conferences.ieee.org/conferences_events/conferences/conferencedetails/45307).

Papers in International Conference of Artificial Intelligence and Information Technology 2019 for media communication only which is spread among the authors, Keynote speakers, and other academic colleagues in the International Conference of Artificial Intelligence and Information Technology 2019, at 13-14 March 2019 at Platinum Adisucipto Hotel & Conference Center, Yogyakarta, Indonesia.

Each paper which is shown in this International Conference of Artificial Intelligence and Information Technology 2019 can be appeared at proceeding of International Conference of Artificial Intelligence and Information Technology 2019 where the authors of each paper should :

1. Present their paper
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Failing to do the requirement will be subjected to eliminated from proceeding of International Conference of Artificial Intelligence and Information Technology 2019.

International Conference of Artificial Intelligence and Information Technology 2019 Conference Schedule

Wednesday, 13 March 2019

Time	Activity		
08.00 - 09.00	Participants Registration & Materials Collection		
09.00 - 10.00	Welcome Speech & Opening Ceremony - General Chair of ICAIIT 2019 - Rector Kalbis Institute - Rector Universitas Atma Jaya Yogyakarta		
10.00 - 10.30	Coffee Break		
10.30 - 11.15	Keynote Speech 1 Professor Andrea Corradini (Copenhagen School of Design and Technology, Denmark) Speech Title: Multimodal Data Analysis		
11.15 - 12.00	Keynote Speech 2 HAIYONG WU, Ph. D (School of Information Engineering, Nanjing Xiaozhuang University) Speech Title: Deep Learning in Tractography		
12.00 - 13.00	Lunch		
13.00 - 15.00 (15 Minutes presentation per paper) Session 1: 1:13.00-13.15 2:13.15-13.30 3:13.30-13.45 4:13.45-14.00	Titanium 1 1. 1570508359 2. 1570526507 3. 1570526480 4. 1570526013 5. 1570518440 6. 1570519077 7. 1570518796	Titanium 2 1. 1570512443 2. 1570512569 3. 1570514049 4. 1570507038 5. 1570512457 6. 1570526214 7. 1570513290	Titanium 3 1. 1570512696 2. 1570512578 3. 1570512583 4. 1570512614 5. 1570512722 6. 1570512735 7. 1570518672

5:14.00-14.15 6:14.15-14.30 7:14.30-14.45				
15.00 - 15.30	Coffee Break			
15.30 - 17.00 (15 Minutes presentation per paper) Session 2: 1:15.30-15.45 2:15.45-16.00 3:16.00-16.15 4:16.15-16.30 5:16.30-16.45 6:16.45-17.00	Titanium 1 1.1570515432 2.1570526222 3.1570526304 4.1570526319 5.1570526544 6.1570526452	Titanium 2 1.1570513614 2.1570497900 3.1570497821 4.1570512658 5.1570523975 6.1570525893	Titanium 3 1.1570526455 2.1570526552 3.1570516699 4.1570513732 5.1570509093 6.1570526401	Ballroom 1 1. 1570521650 2. 1570526538 3. 1570526466 4. 1570526453 5. 1570524081 6. 1570513593
18.00 - 20.00	Gala Dinner at Rama Shinta Resto Prambanan Temple			

Thursday, 14 March 2019

Time	Activity			
08.00 - 09.00	Registration & Coffee Break			
09.00 - 09.45	Keynote Speech 3 Dr. Suryadiputra Liawatimena, S.Kom., PgDip.App.Sci (Universitas Bina Nusantara, Indonesia) Speech Title: Artificial Intelligence in Agriculture & Fishery			
09.45 - 10.30	Keynote Speech 4: Associate Professor Władysław Homenda (Warsaw University of Technology, Poland) Speech Title: Cognitive Maps for Time Series Modeling			
10.30 - 11.30 (15 Minutes presentation per paper) Session 3: 1:10.30-10.45 2:10.45-11.00 3:11.00-11.15 4:11.15-11.30	Titanium 1 1.1570526412 2.1570526525 3.1570516332 4.1570526533	Titanium 2 1. 1570526555 2. 1570526750 3. 1570508178 4. 1570526557	Ballroom 1 1. 1570526547 2. 1570526500 3. 1570511011 4. 1570522671	Ballroom 2 1. 1570526541 2. 1570512562 3. 1570513741 4. 1570513710
11.30 - 12.30	Lunch			
12.30 - 15.00 (15 Minutes presentation per paper) Session 4: 1:12.30-12.45 2:12.45-13.00 3:13.00-13.15 4:13.15-13.30 5:13.30-13.45 6:13.45-14.00 7:14.00-14.15 8:14.15-14.30 9:14.30-14.45 10:14.45-15.00	Titanium 1 1.1570526563 2.1570516556 3.1570523658 4.1570524898 5.1570524566 6.1570526512 7.1570484576 8.1570511144 9.1570520869	Titanium 2 1. 1570512995 2. 1570510797 3. 1570510791 4. 1570526499 5. 1570526192 6. 1570526423 7. 1570523474 8. 1570526180 9. 1570514074	Ballroom 1 1. 1570512694 2. 1570497875 3. 1570512201 4. 1570513608 5. 1570513712 6. 1570513896 7. 1570513597 8. 1570526714 9. 1570526573	Ballroom 2 1. 1570515288 2. 1570523931 3. 1570526385 4. 1570526502 5. 1570526281 6. 1570526529 7. 1570521672 8. 1570526218 9. 1570526456 10. 1570526549
15.00 - 15.30	Coffee Break			

15.30 - 16.30	Closing Ceremony
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Friday, 15 March 2019

Time	Activity
07.00 - 20.00	Excursion (for Full Package only)



International Conference of Artificial Intelligence and Information Technology 2019

List of Papers

Paper Code	Paper Title (Authors)	Room (Session) Time	Page
1570484576	A Comparative Study on Variational Autoencoders and Generative Adversarial Networks (Mirza Sami, Iftekharul Mobin)	Titanium 1 (4), 14.00-14.15	1
1570497821	Face Detection using Haar Cascades to Filter Selfie Face Image on Instagram (Adri Priadana, Muhammad Habibi)	Titanium 2 (2), 16.00-16.15	6
1570497875	MREAK : Morphological Retina Keypoint Descriptor (Himanshu Vaghela, Manan Oza, Sudhir Bagul)	Ballroom 1 (4), 12.45-13.00	10
1570497900	Semi-Supervised Image-to-Image Translation (Manan Oza, Himanshu Vaghela, Sudhir Bagul)	Titanium 2 (2), 15.45-16.00	16
1570507038	Social Media Prototyping for Web-based Property Business (Harya Bima Dirgantara, Paramaresthi Windriyani, Rendy Adiwikarta)	Titanium 2 (1), 13.45-14.00	21
1570508178	Simple Implementation of Fuzzy Controller for Low Cost Microcontroller (Wakhyu Dwiono, Arif Johar Taufiq, W Winarso)	Titanium 2 (3), 11.00-11.15	26
1570508359	Design of Manufacture Professional Training and Assessment Information System in The Implementation of PBET (Production Based Education and Training) Learning Activity Model (Yustina Tritularsih)	Titanium 1 (1), 13.00-13.15	31
1570509093	Extraction of Skull and Face Surfaces from CT Images (Masy Ari Ulinuha, Eko Mulyanto Yuniarno, I Ketut Eddy Purnama, Mochamad Hariadi)	Titanium 3 (2), 16.30-16.45	37
1570510791	Real-time Moving Object Video Tracking using Support Vector Machines for Visual Servo Application (Modestus Oliver Asali, Saripudin, Bambang Trilaksono, Toto Indriyanto)	Titanium 2 (4), 13.00-13.15	41
1570510797	Visual Servoing using Mixed Sensitivity H_{∞} Control for Yaw-Pitch Camera Platform (Saripudin, Modestus Oliver Asali, Bambang Riyanto Trilaksono, Toto Indriyanto)	Titanium 2 (4), 12.45-13.00	48
1570511011	Automatic Lecture Video Content Summarization with Attention-based Recurrent Neural Network (Muhammad Bagus Andra, Tsuyoshi Usagawa)	Ballroom 1 (3), 11.00-11.15	54
1570511144	Design and Development Meeting Schedule Management Application using the RAD Method (Egia Rosi Subhiyakto, Yani Parti Astuti)	Titanium 1 (4), 14.15-14.30	60
1570512201	The Influence of Sampling Frequency on Guitar Chord Recognition using DST Based Segment Averaging (Linggo Sumarno)	Ballroom 1 (4), 13.00-13.15	65
1570512443	The Priority of Tourism Destinations Development using 6AsTD Framework and TOPSIS (Yunifa Miftachul Arif, Supeno Mardi Susiki Nugroho, Mochamad Hariadi)	Titanium 2 (1), 13.00-13.15	70
1570512457	Systematic Literature Review of Profiling Analysis Based on Social Media (Mihundayani, Ema Utami, Anggit Dwi Hartanto, Sumarni Adi, Suwanto Raharjo)	Titanium 2 (1), 14.00-14.15	77
1570512562	NDNization of IP Network Based On Communication Flow Model (Fandhy Bayu Rukmana, Nina Hendrarini, Riri Fitri Sari)	Ballroom 2 (3), 10.45-11.00	83
1570512569	Improve Smart Waste Management to Preserve Tourist Attractions Yogyakarta in IoT Environment (RANIA RIZKI ARINTA, Dominikus Boli Watomakin, Suyoto)	Titanium 2 (1), 13.15-13.30	88
1570512578	Smart Kost: Ubiquitous Boarding House Controlling and Monitoring System in Industry 4.0 (Julius Galih Prima Negara, Alfredo Gormantara, Suyoto)	Titanium 3 (1), 13.15-13.30	94
1570512583	IoT Based: Improving Control System For High-Quality Beef in Supermarkets	Titanium 3 (1), 13.30-13.45	99

	(BALTRA AGUSTI PRAMAJURI, Erni Widarti, Suyoto)		
1570512614	IOT: Improved Home Energy Control System Based on Consumer Behavior (Melky Radja, Gilbert Gutabaga Hungilo, Gahizi Emmanuel, Suyoto)	Titanium 3 (1), 13.45-14.00	104
1570512658	A classification approach of emotional reactions while driving a vehicle (Andrea Corradini, Alexander Efa)	Titanium 2 (2), 16.15-16.30	109
1570512694	Determining the Neural Network Topology from the Viewpoint of Kuhn's Philosophy and Popper's Philosophy (MUHAMMAD IBNU CHOLDUN RACHMATULLAH, Kridanto Surendro, Judhi Santoso, Dimitri Mahayana)	Ballroom 1 (4), 12.30-12.45	115
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1570512722	IoT Based: Hydroponic Using Drip Non-Circulation System for Paprika (Dhana Sudana, Dadang Eman, Suyoto)	Titanium 3 (1), 14.00-14.15	124
1570512735	Smart hydroponic farming with IoT-based climate and nutrient manipulation system (Rangga Perwiratama, Yosef Kelly Setiadi, Suyoto)	Titanium 3 (1), 14.15-14.30	129
1570512995	Audio Steganography Using Lifting Wavelet Transform and Dynamic Key (Mohamad Anwar, Moechammad Sarosa, Erfan Rohadi)	Titanium 2 (4), 12.30-12.45	133
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1570513608	Forming Formation of Particle Swarm using Artificial Neural Network Self Organizing Map (ANN-SOM) with 2-leveled Strategy (Bayu Fandidarma, Achmad Jazidie, Rusdhianto Efendi Abdul Kadir)	Ballroom 1 (4), 13.15-13.30	157
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1570513732	EEG-based Mental Fatigue Detection Using Cognitive Tests and RVM Classification (Andi Setiawan, Adhi Dharma Wibawa, Evi Septiana Pane, Mauridhi Hery Purnomo)	Titanium 3 (2), 16.15-16.30	180
1570513741	REINFORCEMENT POINT AND FUZZY INPUT DESIGN OF FUZZY Q-LEARNING FOR MOBILE ROBOT NAVIGATION SYSTEM (Arga Dwi Pambudi, Trihastuti Agustinah, Rusdhianto Efendi Abdul Kadir)	Ballroom 2 (3), 11.00-11.15	186
1570513896	Parameter Identifiability of Phased-MIMO Radar (Muttaqin Hardiwansyah, Syahfrizal Tahcfullloh, Gamantyo Hendratoro)	Ballroom 1 (4), 13.45-14.00	192
1570514049	Review of Benefit Using Gamification Element for Countryside Tourism (Fedelis Brian Putra Prakasa, Andi Wahyu Rahardjo Emanuel)	Titanium 2 (1), 13.30-13.45	196
1570514074	The Classification of the Movie Genre based on Synopsis of the Indonesian Film (Antonius Christiyanto Saputra, Pius Guisepe Sarto Aji Tetuko, Giovanni Christian Nugroho, Anjelina Br Sitepu, Stanley, Yohanes Sigit Purnomo WP)	Titanium 2 (4), 14.30-14.45	201
1570515288	A Study of Text Classification for Indonesian News Article (Grelly Lucia Yovellia Londo, Dwiky Hutomo Kartawijaya, Muhammad Rafi Aryasuta P, Hesti Tri Ivaryani, Dipo Ariyandi, Yohanes Sigit Purnomo WP)	Ballroom 2 (4), 12.30-12.45	205
1570515432	Big Data Analytics: Estimation of Destination for Users of Bus Rapid Transit (BRT) Public Transportation in Jakarta (MUHAMMAD SYARIF, Widyawan, Teguh Bharata Adji)	Titanium 1 (2), 15.30-15.45	209
1570516332	Gamification of Mobile-based Japanese Language Shadowing (Hans Christian Kurniawan, Benhard Sitohang, Satrio Adi Rukmono)	Titanium 1 (3), 11.00-11.15	215

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1570516699	Classification of Premature Ventricular Contraction based on ECG Signal using Multiorder Rényi Entropy (Achmad Rizal, Inung Wijayanto)	Titanium 3 (2), 16.00-16.15	225
1570518440	Predictive Analytics for Predicting Customer Behavior (Asniar, Kridanto Surendro)	Titanium 1 (1), 14.00-14.15	230
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1570519077	Fluid Simulation Based on Material Point Method with Neural Network (Pandu Akbar Dwikatama, Dody Dharma, Achmad Imam Kistijantoro)	Titanium 1 (1), 14.15-14.30	244
1570520869	Designing IT-based Skills and Competency Learning System (Sigit Triyono, Yetti Supriyati, Billy Tunas)	Titanium 1 (4), 14.30-14.45	250
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