



International Research
Network for Engineering
Science and Technology

(ICCNIT-OCT-2022

**IRNEST 3rd International Conference on
Communication and Networking, Information
Technology, Engineering, Basic
and Applied Sciences**

Shanghai, China

Date: October 15-16, 2022

www.irnest.org

CONFERENCE BOOK OF ABSTRACT PROCEEDINGS

IRNEST-2022

International Research Network for Engineering Science and Technology

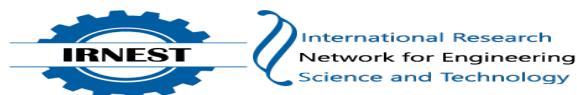


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Book of Abstracts Proceedings

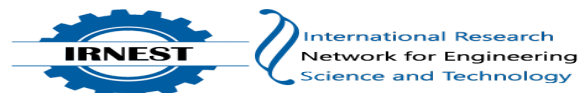
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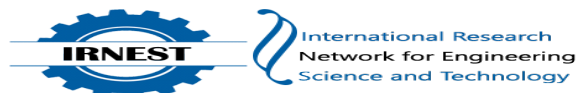
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***IRNEST 3rd International Conference on
Communication and Networking, Information
Technology, Engineering, Basic and Applied Sciences
(ICCNIT-OCT-2022),***

**Venue: VESH COFFEE No. 1100 Ding Xi Road (Near Zhao Hua Road)
Changning District 1100101**

Conference Theme: Providing Platform for enhancement of research
and developmental activities through networking.



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CONFERENCE TRACKS

- Computer and Software Engineering
- Mechanical & Metallurgical Engineering
- Electrical & Electronics Engineering
- Civil Engineering
- Bio-Technology & Food Technology
- Chemistry & Chemical Engineering
- Physical, Applied and Life Sciences
- Interdisciplinary

CONFERENCE CHAIR MESSAGE

Prof. Lin GAO

“International Conference of International Research Network for Engineering Science and Technology (IRNEST)” is a platform that thrives to support the worldwide scholarly community to analyze the role played by the multidisciplinary innovations for the betterment of human societies. It also encourages academicians, practitioners, scientists, and scholars from various disciplines to come together and share their ideas about how they can make all the disciplines interact in an innovative way and to sort out the way to minimize the effect of challenges faced by the society. All the research work presented in this conference is truly exceptional, promising, and effective. These researches are designed to target the challenges that are faced by various sub-domains of the social sciences and applied sciences.

I would like to thank our honorable scientific and review committee for giving their precious time to the review process covering the papers presented in this conference. I am also highly obliged to the participants for being a part of our efforts to promote knowledge sharing and learning. We as scholars make an integral part of the leading educated class of the society that is responsible for benefitting the society with their knowledge. Let’s get over all sorts of discrimination and take a look at the wider picture. Let’s work together for the welfare of humanity for making the world a harmonious place to live and making it flourish in every aspect. Stay blessed.

Thank you.

Prof. Lin GAO

Conference Chair

Email: lin_gao@irnest.org



CONFERENCE AGENDA

DATE: Oct 15-16, 2022

LOCATION: VESH COFFEE No. 1100 Ding Xi Road (Near Zhao Hua Road)hangning District 1100101

EVENT TITLE: IRNEST 3rd International Conference on Communication and Networking, Information
Technology, Engineering, Basic and Applied Sciences (ICCNIT-OCT-2022)

Start Time

09:00 am - 09:10 am: Registration & Kit Distribution
09:10 am - 09:20 am: Introduction of Participants
09:20 am - 09:30 am: Inauguration and Opening address
09:30 am - 09:40 am: Grand Networking Session

Tea/Coffee Break (09:40 am -10:00 am)



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DATE: Oct 15-16, 2022

LOCATION: VESH COFFEE No. 1100 Ding Xi Road (Near Zhao Hua Road)hangning District 1100101

EVENT TITLE: IRNEST 3rd International Conference on Communication and

Networking, Information Technology, Engineering, Basic and Applied Sciences ((ICCNIT-OCT-2022)

Session: 01
10:00 am - 12:00 pm: Presentation Session
Track A: Engineering, Technology & Applied Sciences

Presenter Name	Manuscript Title	Paper ID
Woojin Juhn	Comparison of Stock Price Prediction Using Facebook, Prophet, and ARIMA Methods	ICCNIT-OCT22-101
Lyndsey Kim	An Analysis into Global Suicide Trends and Their Relation to Current Events Through a Socio-Cultural Lens	ICCNIT-OCT22-105
Hiroshi YAMAZAKI	Effect Of TioCoating And UV Irradiation On Oil Decomposition/Removal On The Surface Of The Optical Fiber Sensor	ICCNIT-OCT22-102
Miyuki KADOKURA	Vibration Pattern Measurement Using A Hetero-Core Optical Fiber Sensor For Defect Diagnosis	ICCNIT-OCT22-103
Masahiro Mikami	Aging Effect Of Pd Based Hetero-Core Optical Hydrogen Sensor By The Storage In Different Gases Atmosphere	ICCNIT-OCT22-108
Hiroyuki Yoshimi	Body Motion Monitoring In Nursing Using Tape-Shaped Sensors With A Hetero-Core Optical Fiber Sensor	ICCNIT-OCT22-107

Lunch Break & Closing Ceremony (12:00 pm - 01:00 pm)

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Participants Registered As Listener/ Observer

The following Scholars/ practitioners who don't have any paper presentation, however they will attending the conference as delegates & observers.

Official ID: SHM-2022-102A

Sara Ali Abdulrahim

Xian Jiaotong University, China

CONFERENCE AGENDA

DATE: Oct 15-16, 2022

LOCATION: VESH COFFEE No. 1100 Ding Xi Road (Near Zhao Hua Road)hangning District 1100101

EVENT TITLE: IRNEST 3rd International Conference on Communication and Networking, Information
Technology, Engineering, Basic and Applied Sciences (ICCNIT-OCT-2022)

Conference Day 02 (Oct 16, 2022)

Second day of conference will be specified for touristy. Relevant expenses are borne by
Individual him/herself.



*IRNEST 3rd International Conference on Communication and Networking,
Information Technology, Engineering, Basic and Applied Sciences
(ICCNIT-OCT-2022) Shanghai, China*

TRACK A

ENGINEERING, TECHNOLOGY & APPLIED SCIENCES

Comparison of Stock Price Prediction Using Facebook, Prophet, and ARIMA Methods

*Woojin Juhn

Demarest High School, New Jersey

Keywords: Data science, Computer Science, Machine Learning, Forecasting, Stocks, Statistics, Prophet, Coding

Automated forecasting of stock prices and trends is an active area of interest in machine learning. A variety of time-series statistical and machine learning based forecasting techniques have been developed over the years. In this work, we compare and evaluate the performance of a recently forecasting technique, Prophet, developed by Facebook for predicting stock trends and prices. For comparison, we applied the Prophet and a traditional auto-regressive integrated moving average (ARIMA) model to predict the patterns of five stocks: Apple, Tesla, Facebook, Netflix, and Google. The performance of the two methods was compared using the root-mean square error (RMSE) statistic. The results show that the Prophet method provides more accurate predictions (RMSE: 181.2) compared to the ARIMA method (RMSE: 52467.7). We have implemented a Python-based tool for stock prediction and forecasting using the Prophet and ARIMA methods.

An Analysis into Global Suicide Trends and Their Relation to Current Events Through a Socio-Cultural Lens

*Lyndsey Kim

Academy for Allied Sciences, Summit, NJ

Keywords: Suicide Trends, Current Events, Data Analysis, World Health Organization, Durkheim Theory

We utilized country-level data on suicide rates from 1985 through 2015 provided by the WHO to explore global trends as well as country-specific trends. First, we find that up until 1995, there was an increase in suicide rates globally, followed by a steep decline in deaths. This observation is largely driven by the data from Europe, where suicides are prominent but steadily declining. Second, men are more likely to commit suicide than women across the world over the years. Third, the older generation is more likely to commit suicide than youth and adults. Finally, we turn to Durkheim's theory and use it as a lens to understand trends in suicide across time and countries and attempt to identify social and economic events that might explain patterns that we observe. For example, we discovered a drastically different pattern in suicide rates in the US, with a steep increase in suicides in the early 2000s. We hypothesize this might be driven by both the 9/11 attacks and the recession of 2008.

Aging Effect Of Pd Based Hetero-Core Optical Hydrogen Sensor By The Storage In Different Gases Atmosphere

^{1*}Masahiro Mikami, ²Michiko Nishiyama, ³Shoichi Kubodera, ⁴Kazuhiro Watanabe
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University, Tokyo, Japan

Keywords: Optical Fiber, Palladium Nanoparticles, Hydrogen, Durability

In recent years, hydrogen has attracted much attention as a clean renewable and abundant energy source. However, it has an explosion risk when the concentration in air exceeds more than the explosion limit of 4%. Therefore, reliable hydrogen sensors are needed for rapid and accurate hydrogen leakage detection. In potentially explosive environments, optical fiber sensors are preferable to be used since they have no electrical contact in the sensor portion and transmission line. Most hydrogen sensors based on the optical fiber have employed palladium (Pd) thin film because of the selective absorption of hydrogen. We have proposed hetero-core structured optical fibers, which consisted of a single mode fiber inserted into a multimode transmission fiber, as a hydrogen sensor with Pd materials. The hetero-core optical hydrogen sensor could detect the change in dielectric function of Pd based on the optical loss change in the near-infrared region. Our previous works attempted to use Pd nano-particles (PdNP) because the PdNP could be a useful candidate to achieve a trade-off between the response time and sensitivity, with the life time of operation to be more improved for practical application level. This study has shown the storage effect of PdNP sensors on the life time by means of evaluating the response time and sensitivity of the PdNP sensors for 4 % hydrogen gas every two weeks. The sensors were stored in moist or dry and room-temperature or low-temperature air with resulting in an aging effect of the proposed Pd based hydrogen hetero-core optical fiber sensor. It has been found that dry and low-temperature air environments less than 20 % and 0 deg. shows to suppress the deterioration of PdNP.

Body Motion Monitoring In Nursing Using Tape-Shaped Sensors With A Hetero-Core Optical Fiber Sensor

^{1*}Hiroyuki Yoshimi, ²Yuya Koyama, ³Michiko Nishiyama, ⁴Emi Yanagisawa, ⁵Mariko Hayashi, ⁶Kazuhiro Watanabe

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Keywords: Hetero-Core Fiber Sensor, Body Mechanics, Body Motion Measurement, Nursing Motion

Shortage of nurses have been faced as a social problem along with the declining birthrate and aging population in Japan. One of the major reasons for nurses to quit their jobs is occupational injury lower back pain, which is caused by moving bedridden patients. In order to prevent lower back pain, the nurses need to perform proper care motions based on body mechanics. Body motion monitoring techniques could help them to learn the proper body motions. A hetero-core optical fiber sensor has several features of being lightweight, flexible, and thin. The sensor detects bending on the sensor portion by measuring the transmitted light intensity change. Our previous works showed that body motions for running and golf swings could be monitored with hetero-core optical fiber sensors. In this study, one of the basic motions in nursing, which is a transfer care motion, was monitored with tape-shaped sensors embedding the hetero-core optical fiber sensor in medical tapes. The sensors were attached to both side of shoulders, upper arms, lower legs, and soles of the feet. The sensor directly detected a minute deformation of the skin surface. A student, who belongs to department of nursing, performed three kinds of care motions including a correct motion and erroneous motions. The result showed that the tape-shaped sensors were able to distinguish between the proper care and erroneous motions. The proposed techniques will be applied for training tools for beginner or non-expert caregiver to learn the proper care motion.

Smiling Face Detection Using Tape Shaped Sensors Based On Hetero-Core Fiber Optics

^{1*}Yumi Hosokawa, ²Yuya Koyama, ³Michiko Nishiyama, ⁴Kazuhiro Watanabe

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Keywords: Face Detection, Facial Expression, Duchenne Smile, Tape Sensor, Hetero-Core Fiber Optics

Facial expression plays an important role in social communication. Smile brings us some benefits such as a facilitation of interpersonal communication, a construction of good human relations, and positive effects on the mind and body. Especially a voluntary smile, which is known as Duchenne Smile, makes its action attractive because it presents a positive feeling to others. Therefore, it is desired to be used in improvement of the customer service and quality of life. In this paper, we propose an unconstrained facial expression detecting method based on a fiber optics sensor from minute deformation of the skin surface for a training system of making the natural and voluntary smile. We used the hetero-core fiber optics sensor embedded in a medical film tape, which was able to be attached to the skin without constraint. The hetero-core optical fiber sensor, which has several features of such as lightweight, flexibility, and thinness, can detect bending on the hetero-core portion through the transmitted light intensity change. In our previous works, body motions were monitored in real time with the tape shaped sensor using the hetero-core fiber optics. Responses of the tape shaped sensor were interrogated for a single subject (female, 22 years old) with watching a comedy show on a PC. In order to detect expression change for her smile, the three tape shaped sensors were attached to the face close to eyes, cheeks, and mouth.

UP COMING EVENTS

You can find the details regarding our upcoming events by following below:

<http://irnest.org/upcoming-conferences/>



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VISION

IRNEST is a dedicated platform to promote and encourage the latest advancements in Science, Engineering Technology & Applied Sciences for the benefit of human development through highly significant research contributions, conferences, and other professional, educational and mentoring activities.

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