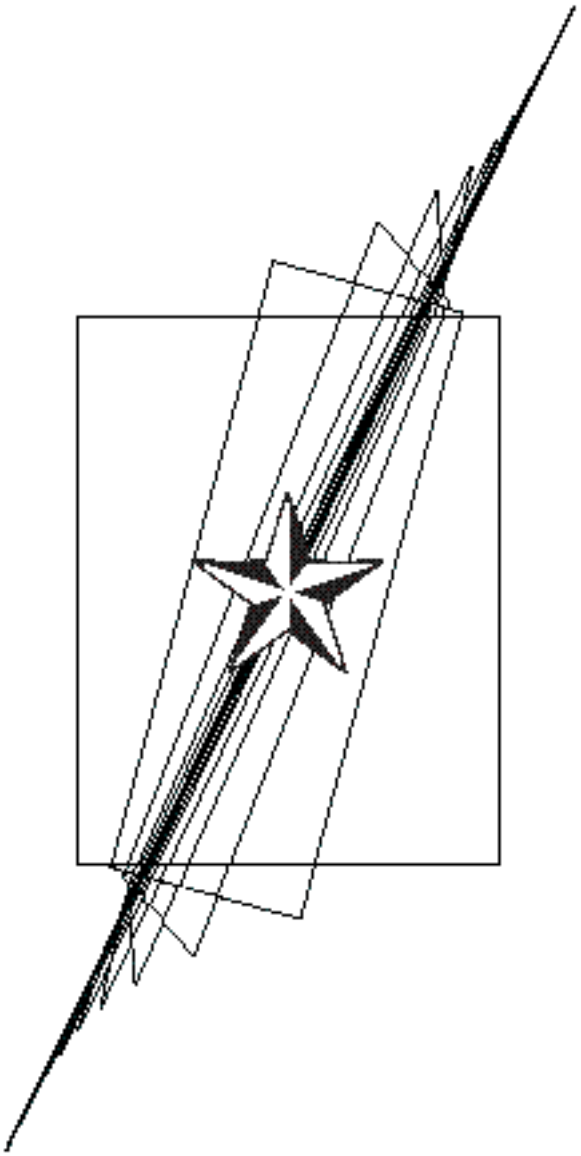

# JOURNAL OF COMPUTATIONAL INNOVATIONS AND ENGINEERING APPLICATIONS

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The **Journal of Computational Innovations and Engineering Applications (JCIEA)** is a peer-reviewed, open access journal of De La Salle University, Manila. The JCIEA aims to promote the development of new and creative ideas on the use of technology in solving different problems in different fields of our daily lives. The JCIEA solicits high quality papers containing original contributions in all areas of theory and applications of Engineering and Computing including but not limited to: Computational Applications, Computational Intelligence, Electronics and Information and Communications Technology (ICT), Manufacturing Engineering, Energy and Environment, Robotics, Control and Automation, and all their related fields. The JCIEA editorial board is comprised of experts from around the world who are proactively pushing for the development of research in these fields.

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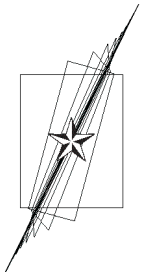

# JOURNAL OF COMPUTATIONAL INNOVATIONS AND ENGINEERING APPLICATIONS

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# From the Editor

The Journal of Computational Innovations and Engineering Applications (JCIEA) is a peer-reviewed and abstracted journal published twice a year by De La Salle University, Manila, Philippines. JCIEA aims to promote and facilitate the dissemination of quality research outputs that can push for the growth of the nation's research productivity. In its second volume, second issue, seven articles were selected to provide valuable references for researchers and practitioners in the field of environmental engineering, air quality monitoring, agricultural crop health assessment, healthcare engineering, assistive systems, machine learning, computer vision, video processing, wireless systems, motor controller for electric vehicles, and robotic systems.

The first article is "*The Adoption and Inhibition of Robotics Technology in the Philippines*". Because of the Fourth Industrial Revolution (FIRe), advancement in technology such as robotics are employed in various sectors of industries. The adoption of it in the Philippines has been studied and analyzed based on its impact. The Philippine government has its initiative in the adoption of robotics technology through its program Inclusive Innovation Industrial Industry Strategy (i3s). The adoption has resulted to decrease in labor force while reduced production expenses. Philippine laws has been crafted to further enhanced the adoption of this technology.

The second article is "*Solar-Powered Automated Green Leafhopper Bait Trap for Rice Crops*". The problem of rice pest is not new to all especially in the Philippines. Rice is the primary commodity of the Filipinos. A lot of farmer are struggling in income loss due to the presence of pest such as green leafhopper that destroy their crops. The paper introduced a bait mixture that attracts these leafhoppers. The system has been deployed in the Philippine Rice Research Institute and it showed high reliability.

The third article is "*Evaluation of Gas-Steam Combined Cycle Generator Unit Using Mango Pit as Biogas*". Waste materials are often discarded into the waste land. Mango pits are one of the example of organic waste that can be used as a biogas. In this paper, the authors were able to use mango pits as alternative source of energy. It delivered an efficiency of 20% to 35% for stand alone turbine gas, 26% to 35% for steam turbine and 35% to 55% for the combined cycle. This study is also a good practice of conserving the environment through the reprocessing of waste materials.

The fourth article is "*Design of an Automated Irrigation and Lighting System for a Two-Tier Nutrient Film Technique Hydroponics*". In this paper, the correlation of light and nutrients has been studied. The authors used the Proportional-Integral-Derivative system in observing the relationship of these parameters in the growth of a crop. It was also used to control the acidity and conductivity of the solution that being delivered to the hydroponics system. This study proved that there is a correlation between the two factors and the efficient growth of the crops were attainable.

The fifth article is "*DeepView: A Wireless Dynamic Facial Recognition System with Data Logging*". Face recognition is one of the applications that uses artificial intelligence. A dynamic wireless facial recognition system with data logging capabilities were proposed. Convolutional Neural Network employing histogram of gradient and affine transformation were used in order to recognize face even when faces are not properly aligned while

fronting the camera. The developed system has shown high accuracy and was recommended for adoption in face searching engines.

The sixth article is "*Development of an Automatic Data-centered Parking Space Occupancy Detection with Vehicle License Plate Web-Based Monitoring*". The application of Convolutional Neural Network using You Only Look Once (YOLO) model and Tesseract OCR for character recognition made it possible to detect vehicle license plate in a parking space. The parking occupancy network employs a simplified AlexNet to classify parking spaces as either 'vacant' or 'occupied'. Testing was done on an emulated parking lot, where the live camera feed on the entrance and exit are simulated by prerecorded videos. This study has achieved a high efficiency in the detection of both the vacant/occupied space and vehicle plate.

Original research outputs are most welcome to JCIEA. There is no publication fee in this journal, and the research papers are assured of fair and fast peer review process. For further information, please visit www.dlsu.edu.ph/ offices/publishinghouse/journals.asp.

**Prof. Elmer P. Dadios, PhD**
*Editor-in-Chief, JCIEA*