



**INTERNATIONAL
SCHOOL**
VIETNAM NATIONAL UNIVERSITY, HANOI

THE 15th STUDENT RESEARCH CONFERENCE

STUDENT RESEARCH PROJECTS

2022-2023 ACADEMIC YEAR

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**International School,
Vietnam National University, Hanoi, No. 1 Trinh Van Bo**



**INTERNATIONAL
SCHOOL**
VIETNAM NATIONAL UNIVERSITY, HANOI

INTRODUCTION



Albert Einstein once said, "Science is a wonderful thing if one does not have to earn one's living at it." The mindset of this great scientist not only reflects the noble nature of scientific work but also serves as a reminder for all aspiring researchers, such as our international students at VNU-IS. Scientific research helps enhance autonomy, creativity, and agility in approaching scientific knowledge to address practical needs. Scientific research among students is a vital activity which improving education quality. Through scientific research, students develop independent working abilities, research habits, and creativity in their learning and future work.

The Student Scientific Research Conference has served as a platform and playground for students to show their talents, present research papers, and exchange ideas. The conference provides an opportunity for students to share research results, discoveries, and innovative solutions to challenges in their respective fields. Following the success of the 14th Student Research Conference in the 2021-2022 academic year, this year's conference witnessed an outstanding number of research projects and a significant increase in works' quality. out of 60 research topics approved by the Faculty-level project acceptance Council, 23 outstanding research topics were selected to participate in the conference. We witness the diversity in research fields from this year research topics submission: from natural sciences, social sciences, engineering, medicine, to economics. Students have brought forth new perspectives, sharp analysis, and innovative solutions.

We sincerely appreciate the contributions of our prestigious professors, lecturers, and advisors who have guided students in their research projects.

Thank you to all students for their contributions, dedication and spirit. Congratulations on the success of the book featuring list of scientific research topics and hope that it will be a valuable source of inspiration and knowledge for the next generations of students.

Thank you!

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UTILIZING XGBOOST TO EXPLORE FEATURES THAT LEVERAGE WEB PAGES RANKING IN EDUCATION INDUSTRY: PRACTICAL TOOL FOR INTERNAL LINKS OPTIMIZATION

CN.NC.SV.22_26

Students:

Nguyen Tuan Thanh	BDA2020A	20070980
Ngo Mai Anh	BDA2020C	20070892
Nguyen Thuy Duong	IB2020B	20070137
Nguyen Thao Vi	MIS2020A	20070011

Advisors: Dr. Tran Duc Quynh, Dr. Nguyen Doan Dong.

Abstract

Search engine optimization (SEO) is widely recognized as an essential technique in online marketing, especially in the education industry. This study proposes a decision model for search engine ranking that can assist administrators in enhancing website performance to meet user needs. To evaluate the interrelationships and influential weights among SEO criteria and identify performance gaps in achieving aspiration levels in the real world, this research uses two models, Light Gradient Boosting Machine (LightGBM) and Extreme Gradient Boosted Decision Trees (XGBoost). The findings suggest that XGBoost outperforms LightGBM in predicting actual search rankings, with an average accuracy of 0.897. Feature analysis reveals that internal links, the keyword in anchor text count, total words, average length of H2 titles on page, and external links are the most impactful features in SEO and the least impactful features are the keyword mentioned in all the H1 & H3 tags, and the number of H2 titles on page. These results underscore the persistent importance of links in search-engine optimization. The study provides actionable insights for online marketers and content creators to create websites that can effectively assist businesses in reaching their target clients.

Key words: Search-Engine Optimization; SEO Optimization; Machine Learning; Rank Prediction; Education Industry; Online Marketing; Content Marketing

ADVANCED DEEP LEARNING APPROACH TO SUPPORT EARLY DIAGNOSIS OF LIVER DISEASES BY DETECTING LIVER TUMORS IN 3D IMAGES.

CN.NC.SV.22_13

Nguyen Manh Tien	BDA2019A	19071006
Do Anh Luyen	BDA2019A	19071575
Nguyen Thi Lan Anh	BDA2020A	20070054
Ngo Dieu Linh	BDA2019A	19071572

Advisors : Dr. Kim Dinh Thai; Dr. Ha Manh Hung

Abstract

Liver and tumor image segmentation has been increasingly employed for key medical purposes, including liver functional assessment, disease diagnosis, and treatment. In the process of computer-aided diagnosis and treatment planning for liver cancer, liver tumor segmentation is a crucial stage. For the segmentation of liver tumors, a variety of strategies have been put forth recently, including both conventional image processing techniques and deep learning-based methods. The segmentation of liver tumors using fully convolution neural networks and unet-based architecture are a revolutionary deep learning technique proposed in this research. On the public Liver Tumor Segmentation (LiTS) challenge dataset, the suggested model performs at the cutting edge, proving its usefulness in precisely segmenting liver tumors. The technique has a lot of potential for clinical applications and might greatly increase the speed and precision of diagnosing and treating liver cancer. In this paper, we present an automatic liver and tumor segmentation method of both 2D, and 3D images based on Convolutional Neural Networks (CNN) run on GPU. The best results we got were of the UNet-3D model with dice coefficient score when the Liver segment was 0.8684 and with the Tumor was 0.462. In comparison, the UNETR is 0.8338 with the Liver segment and 0.3857 with the Tumor. And the lowest model is the Attention UNet with 0.8184 with Liver and 0.2645 with Tumor.

Keywords: Liver Tumor Segmentation, Convolutional Neural Networks , image, UNet-3D model.

VNU-IS RESEARCH GATE SYSTEM

CN.NC.SV.22_10

Students:

Hoang Thanh Nhat	BDA2020A	20070966
Vu Ngo Bao Chau	BDA2020B	20070904
Tran Thi Thu Ha	BDA2020A	20070922
Pham Thi Thien Hue	VISK2021A2	20073029
Nguyen Trong Duc Thanh	ICE2021A	21070395

Advisor: Dr. Nguyen Van Tanh**Abstract**

This research paper presents the development of a document management system, the VNU-IS Data Warehouse Database Information Management System, for the International Faculty at Vietnam National University (VNU) on the Eprints platform. The primary goal is to provide an efficient resource and data management solution for VNU while ensuring the security and safety of the university's storage system. By leveraging Pdfexaminer's capabilities, the system strengthens the overall security measures, safeguarding the integrity of electronic documents within the International Faculty. The VNU-IS Data Warehouse Database Information Management System offers flexibility and customization in managing and storing various types of electronic documents, including articles, research papers, conference proceedings, theses, and dissertations. It provides powerful search and retrieval features, enabling users to efficiently locate specific documents within the repository. The system also includes usage reporting, which aids administrators in tracking document access and usage patterns. Furthermore, the system grants access to open access resources, enabling users to access and contribute to the latest scholarly content, fostering collaboration and knowledge dissemination within the International Faculty. In conclusion, the VNU-IS Data Warehouse Database Information Management System on the Eprints platform offers a secure and efficient solution for document management at the International Faculty.

Keywords: Document management system, Eprints platform, Resource management, Data management, Pdfexaminer, Security, Malicious code, Malicious database.

STUDYING DEEP NEURAL NETWORK METHODS FOR PERSONAL PROTECTIVE EQUIPMENT DETECTION IN REAL CONSTRUCTION SITES

CN.NC.SV.22_01

Students:

Nguyen Duy Thuc	BDA2021A	21070278
Nguyen Ba Duc	BDA2021A	21070614
Dao Duc Trong	BDA2021A	21070079
Hoang Thai Son	BDA2021A	21070123

Advisors: Dr. Kim Dinh Thai; Dr. Ha Manh Hung

Abstract

There are many potential hazards on construction sites, especially when working at height and with heavy objects that could impact workers at any time. Despite this, many workers are still "subjective," not wearing protective equipment such as helmets, protective vests, gloves, or boots at the workplace. Hence, supervisors must regularly patrol, urge, and propagate awareness to workers. However, "surveillance" requires a certain amount of human resources, and it is impossible to monitor many locations continuously, 24/24h. Therefore, this project aimed to develop a system that automatically monitors and warns workers when they lack PPE on dangerous construction sites. In detail, this study constructs a new dataset with a variety of protective equipment commonly required in actual construction sites and presents a comparative analysis of the performance of twelve DNN models built on YOLO architecture to verify PPE observance of workers; i.e., check that if a worker is wearing a helmet, vest, gloves, and boots from image or video in real-time. Experimental methods and quantitative evaluation based on parameters such as precision, recall, and F1-score are also used to evaluate the effectiveness of the models.

Keywords: PE Detection, Deep Neural Network, Construction.

**PREDICTION OF FINANCIAL RESTATEMENT OF LISTED
COMPANIES IN VIETNAM USING DATA MINING TECHNIQUES**
CN.NC.SV.22_25

Student:

Dong Thanh Duong

BDA2020A

20070914

Advisors: Dr. Truong Cong Doan, Dr. Nguyen Thi Kim Oanh, Dr. Ha Manh Hung

Abstract

This aim of manuscript is to compare, analyze and identify the predictive power of difference data mining techniques for financial restatement of listed companies in Viet Nam based on the dataset of 30 companies listed on the Vietnam Stock Exchange from 2016 to 2020. This study evaluates the performance of five models, namely decision tree, logistic regression, artificial neural network, naïve bayes and Support Vector Machine, in terms of accuracy, sensitivity, and specificity. Furthermore, the study proposes a set of rules that can be used to predict the likelihood of future financial restatements. These rules provide investors with a tool to assess the company's potential for fraud before making investment decisions. By identifying the restatement status of financial statement items, investors can better evaluate the financial health of the company and make more informed decisions about investing. The study provides insights into the suitability and effectiveness of various data mining techniques in predicting financial restatements in the Vietnamese context. This research has significant implications for investors, regulators, and auditors in Vietnam, as it can help in improving financial reporting quality and reducing the risk of financial restatements. Developed models can be widely used by both internal and external users of financial statements, who would like to determine if financial statements of analyzed company include accounting errors or not, thanks to easily interpretable results in equation form. The research methodology comprises of two phases. The initial phase involves data preprocessing, which includes computing financial ratios, addressing missing data, and selecting financial ratios that have the most significant impact on fraudulent financial statements.

Keywords: Data mining; Decision Tree; Neural Network; Naïve Bayes.

MACHINE RESEARCH ON CONTROL ALGORITHMS FOR PARALLEL ROBOT

CN.NC.SV.22_16

Students:

Mai Van Quang	AIT2022	22070037
Nguyen Duc Hieu	AAI2022B	22070175
Bui Tuan Anh	AAI2022B	22070027

Advisors: Dr. Nguyen Ngoc Linh; MSc. Hoang Duy

Abstract

The overarching goal of this research is to delve into the intricacies of parallel robots as a whole and Delta robots specifically. The objective is to acquire a comprehensive understanding of the potential applications of Delta robots in diverse fields. To achieve these aims, the study employs the principles of calculus and algebra to formulate and solve two key problems: inverse kinematics and forward kinematics. These solutions are then utilized to construct a control system, which is simulated using Matlab/Simulink. Additionally, the study leverages the principles of kinematics to develop trajectories that enable precise control of the robot's movement along desired paths. The research also seeks to explore the various advantages and limitations of Delta robots in comparison to other types of parallel robots. By conducting a thorough analysis of these factors, the study aims to provide valuable insights into the optimal use of Delta robots in different applications. In order to achieve these objectives, the research employs a multidisciplinary approach that draws on various fields such as mechanical engineering, robotics, and mathematics. Through the application of rigorous scientific methods and advanced analytical tools, the study aims to make a significant contribution to the field of parallel robotics and advance our understanding of the potential of Delta robots.

Keywords: Parallel robot, Delta robot, Inverse kinematics, Forward kinematics, Matlab/Simulink, Model-based control, Kinematics calculation

RESEARCH ON KNOWLEDGE, ATTITUDE AND BEHAVIOUR OF VIETNAMESE TOURISTS ABOUT TRAVEL-RELATED DISEASES

CN.NC.SV.22_21

Students:

Duong Nguyen Hai Linh	HOST2020A	19072122
Tang Thuy Linh	HOST2020A	19072030
Nguyen Huong Ly	VISK2021B	21073262
Nguyen Minh Chau	HOST2021B	21073171
Le Thuy Tien	HOST2020A	19072132

Advisors: Dr. Chu Dinh Toi, MSc. Vu Thi Hue, MSc. Bui Nhat Le

Abstract

This study aims to describe the knowledge, attitudes, and behaviors of Vietnamese tourists regarding diseases related to tourism, as well as to identify factors that may affect these issues. We conducted a cross-sectional descriptive study from 06/02/2023 to 28/02/2023 on 541 Vietnamese citizens aged 18 and above through an online survey using Google Form. Our study results show that Vietnamese tourists have a moderate level of knowledge, positive attitudes, and good behavior towards diseases related to tourism. Our study also identified some factors related to the knowledge, attitudes, and behaviors of Vietnamese tourists regarding diseases related to tourism, such as age, education level, occupation, and frequency of travel. Based on these findings, we have made recommendations to public health authorities and tourist agencies to strengthen educational efforts on the importance of preventive measures against infectious diseases for the population.

Keywords: Knowledge, attitudes, behaviors, moderate level, education level, occupation.

AUTOMATED EXTRACTION OF INFORMATION FROM CURRICULUM VITAE

CN.NC.SV.22_05

Students:

Nguyen Thi Ngoc Quynh	BDA2021C	21070452
Le Tuan Tung	MIS2021B	21070006
Trinh Tuan Viet	BDA2020C	20071002
Nguyen Duy Thuc	BDA2021A	21070278

Advisor: Assoc. Prof. Dr. Tran Thi Oanh

Abstract

The effective application created for resumes (or CVs) received in a variety of file formats, including doc, docx, pdf, and txt, is the subject of this research project. A resume information extraction system is capable of automatically retrieving and processing these resumes. Extracted data, including name, phone number, email address, organization, job position, degree, and skill sets, can be saved as structured data in a database and used in a variety of ways. We proposed a framework that consists of 2 phases: CV Block Segmentation and Name Entity Recognition using Deep Learning models. Our research is conducted on 914 CVs/resumes in English. Comparative evaluation of four different models confirmed XLM-RoBERTa-CRF's superiority in the named entity recognition task with the F1-Score is nearly 0.80. The XLM-RoBERTa-CRF then is deployed to Streamlit for the client from the talent acquisition departments to test our system.

Keywords: Resumes, extraction, structured data, framework, Comparative evaluation.

RESEARCH AND EXPERIMENT WITH A ROBOT ARM WITH 4 DEGREES OF FREEDOM

CN.NC.SV.22_12

Students:

Tran Minh Hieu	AAI2021B	21070451
Nguyen Bui Nhat Huy	AAI2021B	21070506

Advisor: MSc. Pham Hai Yen

Abstract

Robotic arms with 4 degrees of freedom are versatile machines capable of executing precise movements in three-dimensional space. These arms are equipped with four independent control joints, each driven by a servo motor or stepper motor. Through programming, these joints can be orchestrated to perform various tasks tailored to specific applications. The applications of a 4-degree-of-freedom robotic arm are vast and diverse. They excel in tasks such as surface painting and polishing, object manipulation and placement, messaging and photography, product inspection, industrial assembly, scientific research, and more. By leveraging high levels of automation and precision, these robotic arms contribute significantly to enhancing production efficiency and reducing costs for companies and manufacturing facilities. Their utility extends beyond industrial settings, finding applications in fields like medicine, home automation, and education. The flexibility of a 4-degree-of-freedom robotic arm arises from its ability to navigate through three-dimensional space with a wide range of motion. The four independent control joints provide the arm with the freedom to perform complex maneuvers and adapt to different working environments. With their precise control and repeatability, these robotic arms can carry out intricate tasks that require accuracy and consistency. In manufacturing plants, these robotic arms streamline production processes by handling tasks that would otherwise be labor-intensive and time-consuming. By automating repetitive actions, they enhance productivity while maintaining the desired quality standards. Additionally, their integration into assembly lines facilitates seamless collaboration between human workers and machines, further optimizing overall efficiency.

Keywords: Robotic arm, degrees, 3D space, precision, automation, servo motor.

RESEARCH ON THE STATUS OF POST-COVID-19 SYMPTOMS AND RELATED FACTORS IN VIETNAMESE PEOPLE IN 2022

CN.NC.SV.22_28

Students:

Le Thuy Tien	HOST2020A	19072132
Le Ngoc Yen	IB2021A	21070052
Bui Ngoc Thuy Linh	ACF2021E	21073461
Nguyen Minh Hanh	ACF2021E	21073411
Nguyen Phuong Anh	ACF2021D	21073224

Advisors : Dr. Than Van Thai, Dr. Chu Dinh Toi

Abstract

SARS-CoV-2 – the virus that cause worldwide pandemic COVID19 has been control after two years causing milion people to die. After recovery, patients of COVID-19 has suffer from many symptoms called post-COVID-19 symptoms. We carried out a cross-sectional descriptive study through an online survey to decribe the status of post-COVID-19 symptoms, the quality of life, and its associated factor among Vietnamese students. Descriptive statistics and inferential statistics (Univariate and multivariate logistic regression; one-way ANOVA tests with $p < 0.05$) were used. In results, 541 participants had complete responses. More than 75% of subjects had at least one post-COVID-19 symptoms. Neurological symptoms are the most frequent (63%), include tiredness, difficult in thinking and sleep problems. For the quality of life, most recovered COVID-19 patients have no problems with self-care, mobility, or activities of daily living. However, some said they had problems with pain, discomfort, and anxiety. Self-reported health is a factor associated with both the status of post-COVID-19 symptoms and quality of life. In summary, the significant prevalence of post-COVID-19 symptoms and its effect on quality of life suggests that the impacts of COVID-19 can persist for the long term after initial recovery. More studies are needed to explore potential treatments for alleviating symptoms and improving the quality of life in recovered patients in future.

Keywords: Post-COVID-19 symptoms; Vietnamese students; related factors; quality of life.

SMART DRYER FOR PET**CN.NC.SV.22_36****Students:**

Nguyen Thuy Linh	AAI2021B	21070503
To Van Nhat	AAI2021B	21070384

Advisor: MSc. Bui Thanh Tung

Abstract

The smart dryer is a device used to dry the fur and skin of pets after bathing or when they are wet. This device has an cage and heater and fans to generate a hot air flow. When the pet is placed in the drying cage, the hot air flow will blow to dry their fur and skin quickly without causing harm to them. This smart device is very useful for pet owners who want to keep their pets' fur and skin always dry and clean.. This technology is often controlled by an electronic controller, allowing users to adjust the temperature and drying time suitable for their pets. In addition, some pet drying cages are equipped with smart features such as temperature sensors, humidity sensors, and automatic functions to ensure pet safety during drying and energy efficiency. In addition, this device will be developed applied IoT to make pet monitoring easier by allowing pet owners to adjust temperature and humidity on their smartphone without having to manipulate the dryer's setting directly.

Keywords: smart dryer; cage, fans, quality of life

**SENTIMENT ANALYSIS AND RECOGNITION BASED ON
VIETNAMESE TEXT****CN.NC.SV.22_02****Student:**

Nguyen Thi Lan Phuong

BDA2021A

21070075

Advisors: Dr. Kim Dinh Thai, Dr. Ha Manh Hung

Abstract

Expressing emotions is a natural and necessary thing in life, especially for people. Sentiment recognition is a sub-branch of sentiment analysis. Today, the development of sentiment analysis technologies in general and emotion recognition in particular is becoming more and more necessary to serve the increasing needs of people. However, in Vietnam, these technologies are still not developed enough compared to the world, when most emotion analysis software is still embedded from abroad and has little specialization for Vietnamese. Currently, in Vietnam, emotion recognition models mostly only give results in two directions: positive and negative, or in the form of ratings (1 to 5 or 1 to 10). Emotion recognition plays an important role, especially in the service industry, commerce, media, and psychology. In this study, I achieved two goals. First, I built an emotion recognition software with detailed analysis, where the results are displayed according to 7 different emotions including enjoyment, sadness, anger, surprise, fear, disgust, and other. The software accuracy has reached a weighted F1 score of 83.04%. My software is available at my personal website. Secondly, I have built a dictionary to classify emotions of words in Vietnamese grammar with exactly 3108 words classified according to 6 emotions (enjoyment, sadness, anger, surprise, fear, disgust).

Keywords: Smart dryer; cage, fans, quality of life.

CLASSIFICATION AND DETECTION OF COVID-19 PNEUMONIA FROM CHEST XRAY IMAGES BASED ON DEEP LEARNING NEURAL NETWORK

CN.NC.SV.22_04

Students:

Do Van Quy	ICE2017A	17071395
Hoang Thi Chuc	ICE2019A	19071589
Pham Thanh Truong	ICE2020A	20070012

Advisors: Dr. Chu Dinh Toi, Dr. Kim Dinh Thai

Abstract

The global pandemic caused by SARS-CoV-2, also known as COVID-19, has underlined the urgency for rapid, accurate diagnosis to mitigate its widespread impact. This research concentrates on the development and implementation of a novel deep learning neural network to facilitate the classification and detection of COVID-19 pneumonia from chest X-ray images. Utilizing an extensive dataset, the study introduces a methodological framework which comprises of pre-processing, model construction, and evaluation steps.

Our deep learning model, built upon convolutional neural networks (CNN), exploits the nuanced patterns and features within X-ray images, with an aim to distinguish between healthy individuals, COVID-19 pneumonia patients, and patients with other types of pneumonia. The model, trained and validated with a rigorous cross-validation approach, demonstrates superior performance metrics, outperforming contemporary methodologies in both sensitivity and specificity.

This research contributes to the ongoing endeavours to combat COVID-19 by offering a time-efficient, non-invasive, and highly accurate diagnostic tool, potentially aiding in prompt and accurate patient management. Furthermore, it offers a foundation for future research into the application of artificial intelligence in the domain of medical diagnostics, specifically in the realm of infectious diseases.

Keywords: COVID-19 Pneumonia, Chest X-ray Images, Deep Learning, Neural Networks, Medical Image Classification

**RESEARCH AND DEVELOPMENT OF THE MOBILE ROBOT
FOLLOW LINE BASED ON COMPUTER VISION**

CN.NC.SV.22_06

Student:

Pham Tuan Minh

AAI2021A

21070741

Advisor: Dr. Nguyen Dang Khoa

Abstract

This project focuses on the development of a robotics system that utilizes AI and computer vision techniques to automate processes. The main goal is to create a robot capable of autonomously following a black line on a white surface. Equipped with a camera, the robot employs advanced computer vision algorithms implemented in Python using OpenCV for image processing. The system consists of two essential components: image processing and control. In the image processing phase, the robot utilizes various computer vision techniques such as color thresholding, edge detection, and contour identification to accurately detect and extract the black line from the camera feed. These techniques enable the robot to perceive and understand its environment.

The control component of the system incorporates an AI-based PID controller. This controller utilizes the information extracted from the image processing phase to dynamically adjust the robot's steering. By continuously analyzing the line's position, the PID controller ensures that the robot stays on track and follows the line accurately.

The successful implementation of this project demonstrates the seamless integration of robotics, automation, AI, and computer vision technologies. The developed system showcases the potential applications of such technologies in various domains, including autonomous vehicles and manufacturing automation. By enabling robots to autonomously navigate and follow lines, this project opens up possibilities for improved efficiency, precision, and safety in numerous industries.

Keywords: Robotics, Automation, AI, Computer Vision, Line Following, Image Processing, PID Controller, OpenCV.

**RESEARCH AND DEVELOP THE MEASUREMENT OF AIR
QUALITY BASED ON THE IOT TECHNIQUES**

CN.NC.SV.22_07

Student:

Le Thi Thu Huyen

AAI2021B

21070198

Advisor: Dr. Nguyen Dang Khoa

Abstract

Technological revolutions play a very important role in the process of human development. They change human life in a more modern direction day-by-day and hour-by-hour. Along with the development process, changes due to human impact on nature, in the living environment are also taking place, affecting us, such as environmental pollution, climate change, v.v ... The application of technologies in the electronics and information technology industries is increasingly noticed. Internet of Things (IoT) technology is a typical example. It has become quite familiar and applied in many fields of life, in developed countries with advanced science and technology. However, these technologies have not been widely applied in our country. It is still a new subject for researchers, with many potential development purposes. Under the direction and guidance of Dr. Nguyen Dang Khoa, I chose the topic "Research and develop the measurement of air quality (temperature, humidity, CO concentration) based on the IoT techniques", to design a device that could measure temperature, humidity, and CO concentration with low manufacturing, installation, and operating costs. Measurement results from the device can be used to calculate and evaluate air quality from which recommendations can be given to users.

Keywords: Technological revolutions, modern, nature, Internet of Things, advanced science, CO concentration.

**APPLYING ADVANCED DRYING AND EXTRACTION
TECHNOLOGY IN PROCESSING ZANTHOXYLUM RHETSA
TARGETING DIVERSIFICATION IN INDIAN PRICKLY ASH
PRODUCTS**

CN.NC.SV.22_09

Students:

Nguyen Ngoc Linh	VISK2022A	21073407
Nguyen Thi Ha Anh	ACF2022B	22073071
Chu Nhat Anh	AC2020A	20070394
Pham Thanh Truong	ICE2020A	20070012

Advisor: Dr. Nguyen Ngoc Linh

Abstract

This research draws motivation from *Zanthoxylum Rhetsa* and indigenous knowledge regarding its uses. The aim is to revive and advance essential oil extraction techniques for economic, medical and management purposes.

The focus is on ethnic minority communities that have developed unique cultures incorporating *Zanthoxylum Rhetsa* seeds, their characteristics and uses. The objectives are to recover and refine *Zanthoxylum Rhetsa* seed extraction methods and associated drying equipment. Optimizing these techniques and technologies has the potential to significantly increase the economic value and medicinal efficacy of the seeds which are utilized as nutraceuticals and herbal remedies.

Between November 2022 and April 2023, the study will concentrate on essential oil expression from the seeds, seed drying mechanisms and diversifying processed *Zanthoxylum Rhetsa* seed products. By reviving traditional extraction techniques and optimizing materials, the research seeks to enhance oil yields, nutritional values, management practices and community health outcomes. Revitalizing this indigenous knowledge around *Zanthoxylum Rhetsa* essential oil and seeds has the potential to enhance livelihoods through commercialization and mainstreaming the therapeutic properties of the resources.

Keywords : extract, essential oil, Mac Khen, advanced, chemical.

ANALYZING FINANCIAL RATIOS FOR THE COMMERCIAL BANKING INDUSTRY IN THE USA

CN.NC.SV.22_11

Students:

Vuong Thao Chi	AC2021A	21070145
Ta Dang Quang	AC2021C	21070018
Bui Tuong Minh Quang	AC2021A	21070017

Advisor: Dr. Le Duc Thinh

Abstract

Selecting key financial ratios from a significant number of possibilities however, presents a challenge to the analyst, researcher or bank administrator. The large number of ratios derived from published reports can be a source of confusion rather than clarification. The analytical skill lies not in computing the specific ratio but in determining the primary financial characteristics of the firm captured in ratios. Furthermore, management experiences difficulty in determining which ratio to employ in the decision-making process. The purpose of this study is to develop a taxonomy of financial ratios to guide the decisionmaker when assessing a commercial bank's performance (at least in the USA).

Keywords: financial ratios, possibilities, analytical skill, taxonomy, decisionmaker.

SURGICAL TOOL DETECTION IN MINIMALLY INVASIVE SURGERY USING DEEP NEURAL NETWORK

CN.NC.SV.22_14

Students:

Le Ba Tung Duong	AAI2022A	22070101
Nguyen Minh Duc	AAI2022B	22070083
Pham Duc Anh	AAI2022A	22070134

Advisors: Dr. Kim Dinh Thai, Dr. Ha Manh Hung

Abstract

"Surgical Tool Detection in Minimally Invasive Surgery using Deep Neural Network (using YOLOv7) with Python" is a research study focused on developing a method of detecting surgical tools used in Minimally Invasive Surgery (MIS) using the YOLOv7 (You Only Look Once) deep neural network with Python implementation. The research aims to provide an effective solution to detect and identify surgical tools during MIS surgeries, enhancing the accuracy and safety of the surgical procedure using Python. MIS procedures use small incisions and robotic arms, making it essential to detect and identify surgical tools accurately. The YOLOv7 with Python implementation is a state-of-the-art image detection technology that can identify objects with high accuracy. The proposed method of using YOLOv7 with Python in detecting surgical tools will contribute to the development of computer-assisted surgical systems that can identify surgical tools in real-time. This research could improve the efficiency of MIS procedures, making them safer and more accessible to patients with Python. Using image detection with YOLOv7 with Python, this research is expected to achieve high accuracy and fast detection times. The approach could be adapted to other surgical fields to provide a faster and more accurate way of identifying surgical tools with Python. In conclusion, this research study with Python implementation has the potential to make MIS procedures safer and more efficient by providing a robust and accurate method for detecting surgical tools with Python. The use of YOLOv7 (You Only Look Once) with Python in image-only detection is a significant step forward in computer-assisted surgery.

Keywords: detecting surgical tools, deep neural network, accuracy, safety, real-time.

DESIGN AN AUTOMATIC ATTENDANCE SYSTEM BASED ON FACE RECOGNITION

CN.NC.SV.22_15

Students:

Tran Quoc Dang	ICE2020A	20070819
Nguyen Thi Lan Phuong	BDA2021	21070075

Advisors: Dr. Kim Dinh Thai, Dr. Ha Manh Hung

Abstract

This report presents the design and implementation of an automatic attendance system based on facial recognition technology. The system was designed to address the inefficiencies of traditional attendance-taking methods in educational settings. The system can accurately identify and record student attendance in real-time using a camera and facial recognition algorithm. The system was developed using the Python programming language and OpenCV library for image processing. The algorithm was trained on a dataset of student images to recognize and match the faces of students in the classroom. In addition to its accuracy, the system offers several advantages over traditional attendance methods. It eliminates the need for manual attendance-taking, reducing the workload for teachers and improving efficiency. It also provides real-time attendance monitoring, allowing teachers to promptly identify and address attendance issues. The system has the potential for further development and expansion, including integration with school management systems and customization for specific classroom settings. Overall, the system represents a significant step forward in the use of facial recognition technology for educational purposes and can improve attendance-taking processes in schools.

Keywords: automatic, inefficiencies, facial recognition algorithm, real-time, educational purposes.

RESEARCH ON DESIGN NEURAL NETWORK-BASED ADAPTIVE CONTROLLER FOR UNDERACTUATED 3-WHEELED MOBILE ROBOT

CN.NC.SV.22_17

Students:

Vu Minh Duc	AIT2022A	22070119
Dang Tuan Phong	AAI2022B	22070327

Advisors: Dr. Pham Ngoc Thanh, Dr. Le Xuan Hai, MSc. Do Manh Dung

Abstract

Wheeled Mobile Robots (WMRs) are used more frequently in various industries: military, space exploration, and industry. They can operate in hazardous environments and complete tasks autonomously without human intervention. Mobile robots move quickly and accurately, and cost saving. The three-wheeled mobile robot (3WMR) is a nonlinear mechanical model that is difficult to accurately model kinematically and dynamically due to the many unknown parameters. 3WMRs have constraints leading to their movement is not entirely free, and horizontal movement of the body is impossible. In this research, To develop mathematic models of the underactuated 3-wheeled Mobile Robot To derive suitable controllers to ensure the performance of the closed-loop system with - Simplified linear model. - Non-linear model. - Non-linear model with uncertainties. To conduct some analysis in simulation to verify the effectiveness of our designed controllers. In this research, we have developed the mathematic model of the underactuated 3-wheeled Mobile Robot in both linear and non-linear forms. We have derived many stability criteria for the studied system in both cases We have derived suitable linear and nonlinear controllers to ensure the performance of systems. We have conducted various scenarios of analysis in simulation to verify the effectiveness of our controller design.

Keywords: 3WMR-3 Wheeled Mobile Robots, human intervention, linear, Non-linear.

RESEARCH ON DESIGN FUZZY LOGIC-BASED ADAPTIVE CONTROLLER FOR UNDERACTUATED TWO WHEELS SELF- BALANCING ROBOT

CN.NC.SV.22_18

Students:

Nguyen Lam Thanh Tung	AAI2022A	22070144
Hoang Trung Quan	AAI2022B	22070033
Pham Nhat Quang	AIT2022	22071126

Advisors: Dr. Pham Ngoc Thanh , Dr. Le Xuan Hai, Dr. Do Manh Dung

Abstract

This abstract presents a brief overview of designing a fuzzy logic-based controller for a 3-wheeled mobile robot. The controller aims to achieve accurate trajectory tracking while considering uncertainties and non-linearities in the robot's dynamics. Fuzzy logic provides a flexible framework for handling complex information and expert knowledge to determine appropriate control actions based on the robot's current state. The controller's effectiveness is demonstrated through simulation and experimentation, showcasing its potential for accurate and robust trajectory tracking in real-world environments.

Simulation and experimentation are conducted to evaluate the performance of the fuzzy logic-based controller. Various scenarios, including straight-line tracking, circular motion, and obstacle avoidance, are tested to assess the robustness and adaptability of the controller under different operating conditions. The results demonstrate the effectiveness of the fuzzy logic-based controller in achieving accurate and robust trajectory tracking for the 3-wheeled mobile robot. The fuzzy logic approach provides a flexible and intuitive framework for controlling the robot's motion, making it suitable for a wide range of applications in robotics and automation.

Keywords: automatic, inefficiencies, facial recognition algorithm, real-time, educational purposes.

RESEARCH ON ADAPTIVE CONTROL ALGORITHM BASED ON FUZZY FOR INVERTED PENDULUM

CN.NC.SV.22_19

Students:

Pham Truong Son	AAI2022B	22070325
Lam Quang Anh	AAI2022B	22070240
Do Doan ToanVinh	AAI2022B	22070056

Advisors: Dr. Pham Ngoc Thanh, Dr. Le Xuan Hai, MSc. Hoang Duy

Abstract

Inverted pendulums are classical examples of unstable systems commonly used to study control algorithms. This research aims to investigate and develop an adaptive control algorithm based on fuzzy logic for stabilizing an inverted pendulum system. The proposed algorithm incorporates the advantages of both fuzzy logic and adaptive control techniques to enhance the stability and robustness of the system. The research begins by modeling the inverted pendulum system and formulating the control problem. Fuzzy logic is then utilized to design a controller that can adapt to changing system dynamics and uncertainties. The proposed algorithm is implemented and evaluated using simulations and experimental setups, comparing its performance with other existing control methods. The results demonstrate that the adaptive control algorithm based on fuzzy inverted pendulum achieves superior stability and robustness in controlling the system, even under challenging conditions. This research contributes to the field of control systems by providing a novel approach for designing adaptive control algorithms for unstable systems, paving the way for potential applications in various domains, including robotics, transportation, and industrial automation.

Keywords: Rule-based system, Trajectory tracking, Parameter adaptation, Lyapunov stability, HSMC system, fuzzy logic system, inverted pendulum.

RESEARCH ON HOW TO EXTRACT INFORMATION FROM IMAGES

CN.NC.SV.22_20

Students:

Tran Viet Long	MIS2018A	18071483
Ngo Quang Truong	ICE2019A	19071638
Ninh Thi Linh	ICE2019A	19071612
Hoang Huong Chi	MIS2022A	22070449
Do Cong Tuan	ICE2019A	19071639

Advisors: Dr. Truong Cong Doan, Dr. Ha Manh Hung

Abstract

Digital transformation and automatic recognition have long been known as the important part that can benefit the educational system. A significant step toward facilitating the digital transformation of the educational system is the development of an application that can extract information from images. Therefore, in this study, we attempt to develop an application that can help scan and collect data from the images. For instance, in university, this application would be expected to select; assemble information such as the student's name; ID; etc., which would make the process more time-saving and boost the production of work. In the study, we have used Firebase Machine Learning (Firebase ML), Machine Learning Model (ML model) On-device for text recognition, and Text Recognition Accuracy Test. Furthermore, we worked on Text recognition APIs of Cloud Vision of Firebase Machine Learning, TensorFlow Lite Model, React Native Framework, Android Virtual Device of Android Studio, and Actual Android Device in our research. On the other hand, for the experimental method, we first need to have the software, which will be listed and described below. And the indispensable material in this study is the data (Student ID cards), and can't forget the setting on Windows. After hard research, we also created our product. We have tested with many different card images and have also had positive results with a high success rate.

Keywords: Digital transformation, automatic recognition, extract.

CORRECT/INCORRECT FACEMASK-WEARING DETECTION USING DEEP NEURAL NETWORK

CN.NC.SV.22_24

Students:

Dao Ngoc Nam	AAI2022A	22070053
Nguyen Khac Ton	AAI2022A	22070277
Doan Thi Phuong Thao	BEL2022C	22070018
Pham Anh Phuong	AIT2022	22070154
Nguyen Khac Truong	AAI2022A	22070156

Advisors: Dr. Kim Dinh Thai, Dr. Ha Manh Hung

Abstract

In these challenging times when the Covid-19 epidemic is spreading rapidly, governments around the world are taking measures to protect their citizens. In Vietnam, the government has issued a mandatory directive the wearing of masks in crowded places to prevent the spread of the virus. While many people are following the regulations diligently, there are still some individuals who are not complying due to poor awareness or lack of concern. To address this issue, several studies have applied computer vision techniques through camera monitoring to detect and warn people who are not wearing masks or wearing them incorrectly. It is a challenging task to monitor many locations 24/7, and traditional methods have proven to be ineffective. However, with the development of deep neural network models, promising results have been achieved. These studies utilize computer vision algorithms to analyze video footage and identify individuals who are not wearing masks or wearing them incorrectly. The system can detect faces and determine if a mask is present or not. It can also detect if the mask is being worn correctly or if it has slipped below the nose or chin. The system then sends out an alert to remind individuals to wear their masks properly. The use of computer vision technology to monitor people's compliance with wearing masks is a promising development in the fight against Covid-19. It is a cost-effective and efficient way to ensure that people follow the government's directives to protect themselves and others.

Keywords: Covid-19 epidemic, mandatory directive, poor awareness, camera.

IMPROVING SALES FORECASTING MODELS BY INTEGRATING CUSTOMERS' FEEDBACKS: A CASE STUDY OF FASHION PRODUCTS ON SHOPEE PLATFORM

CN.NC.SV.22_27

Students:

Luong Thuy Vy	BDA2020A	20071004
Nguyen Duc Huy	MIS2020A	20070728

Advisor: Assoc. Prof. Dr. Tran Thi Oanh

Abstract

Sales forecasting is the process of estimating future revenue by predicting the amount of product or services a company will sell in the future (i.e. next week, month, quarter, or year). Recently, machine learning has surpassed traditional approaches to sales forecasting in terms of efficiency and accuracy. It can help businesses predict the revenue by using data from past transactions and other factors to build a more advanced forecasting models with minimal human effort. In this report, we investigate predicting sales of fashion companies by utilizing advanced machine learning models. Furthermore, we also examine the influence of customers' online reviews on the performance of the sale forecasting models. It may reduce or increase uncertainty about the product by providing customers with rich information about the users' experience with products. A number of Vietnamese e-commerce websites such as Shopee, Lazada or Sendo have established online review systems to encourage consumers to post product reviews to receive some awards. Accordingly, sentiment analysis techniques have been used to measure the sentiments conveyed through the content of online reviews. Experimental results on a newly-built dataset showed that integrating this information can boost the best sale forecasting models' accuracy by 23,30% in the RMSE score.

Keywords: Sales forecasting, sentiment analysis, time series analysis, machine learning, fashion products, e-commerce analytics, ensemble methods.

PREDICTING BREAST CANCER IN HUMAN USING MACHINE LEARNING

CN.NC.SV.22_32

Students:

Pham Bich Ngoc	ICE2021A	21070100
Satyam Mishra	ICE2019A	19071644
Oni Damilola	ICE2021A	21070917
Vu Minh Phuc	BDA2019A	19071579

Advisor : Dr. Nguyen Van Tanh

Abstract

Breast cancer is a common type of cancer that affects the breast and is characterized by the uncontrollable growth of cells, potentially causing harm to surrounding healthy tissue and organs. Symptoms of breast cancer may include a lump or tumor, swelling, nipple discharge, and swollen lymph nodes. The disease is staged from 0 to 4, with stage 0 being the earliest stage with minimal symptoms and stage 4 indicating that the cancer has spread to other parts of the body. The burden of breast cancer is predicted to increase significantly in the future, with over 3 million new cases and 1 million deaths expected in 2040. Early detection of breast cancer is essential for successful treatment and recovery, and machine learning algorithms such as CART, SVM, NB, and KNN can be used to predict the likelihood of breast cancer based on symptoms. The study proposes using these machine learning methods to analyze and build models for breast cancer detection. The research achieved an accuracy of 98.2%, which is slightly lower than the state-of-the-art methods with an accuracy of 99%. Nevertheless, this approach can be a valuable tool for the early detection of breast cancer and can improve the accuracy of existing diagnostic methods. Overall, this study offers a summary of relevant machine learning methods for breast cancer detection, which can help to curb the disease.

Keywords: Breast cancer, cells, organs, symptoms, disease, state-of-the-art methods, diagnostic.

DETECTING STROKE IN HUMAN USING MACHINE LEARNING CN.NC.SV.22_33

Students:

Christian Chuka	ICE2022B	22070003
Satyam Mishra	ICE2019A	19071644
Oni Damilola	ICE2021A	21070917
Vũ Minh Phúc	BDA2019A	19071579

Advisor: Dr. Nguyen Van Tanh

Abstract

In developing and underdeveloped nations, stroke is a leading cause of mortality and disability. It is a life-threatening condition that occurs when there is a lack of blood flow to the brain from the carotid and vertebral arteries. Because the brain can quickly suffer damage and expire without oxygen, stroke frequently leads to death and can also affect nearby body parts if prompt medical attention is not given. Effects such as spasticity, contractures, paralysis, and death can occur. According to the World Health Organization, stroke accounts for over 137,000 fatalities per year in the United States alone and over 451,000 deaths per year in Africa. Today, stroke is a medical condition that affects people in almost every region of the world, including industrialized, developing, and underdeveloped nations. On average, 1 in 4 adults over the age of 25 will experience a stroke at some point in their life. This year alone, it is estimated that 12.2 million people will experience their first stroke, and 6.5 million of them will pass away as a result. The number of stroke victims worldwide exceeds 110 million. Imagine if this global epidemic could be prevented. The world would be safer, and life expectancy would increase if accurate stroke prediction technology is developed. We proposed a research study to develop a solution to predict strokes in people using machine learning. We employed four models/classifiers to check the accuracy on each of them with the same dataset of people, and we achieved great results. Two of the models gave successful accuracy results of 98% and 98.29%, which is very close to state-of-the-art methods (99%).

Keywords: stroke, life-threatening, brain, contractures, oxygen, victims , dataset .

USING SECURITY METRICS TO DETERMINE SECURITY PROGRAM EFFECTIVENESS

CN.NC.SV.22_34

Students:

Phung Thao Vi	DUAL-MKT2021A	21070749
Oni Damilola	ICE2021A	21070917
Vu Minh Phuc	BDA2019A	19071579
Satyam Mishra	ICE2019A	19071644

Advisor: Dr. Nguyen Van Tanh

Abstract

The security of the data and services that businesses offer is greatly influenced by security goals and measurements. Organizations must have robust security measures due to the rising frequency of data breaches and growing customer and regulatory concerns. To improve cybersecurity risk management and safeguard personal information, a number of data protection rules and regulations have been passed as a result of this. To ensure compliance, these laws and regulations must be continually monitored because they can be complicated. It is crucial to establish a set of security metrics in order to evaluate security controls' efficacy and direct future security decisions. These metrics aid in gauging the effectiveness of security initiatives and helping to inform judgments about how to raise security for all parties involved in service provision and data processing. Key indicators offer insights into the efficacy of security controls and indicate potential security threats, such as key performance indicators (KPIs), key risk indicators (KRIs), and key goal indicators (KGIs). For the purposes of our study, we selected the hypothetical corporation Trivest Technologies Limited, and we offered to analyze security metrics to ascertain the success of the security program. We were successful in creating and implementing security metrics that determined the efficiency of the security program for the organization by defining and employing KPIs, KRIs, and KGIs. The 8th Sustainable Development Goal of Decent Work and Economic Growth, which is aligned with successful security metrics implementation, increases an organization's security posture.

Keywords: security, cybersecurity risk, metrics, key performance indicators.

THE INTELLIGENT PRODUCT CLASSIFICATION SYSTEM.
CN.NC.SV.22_35

Student:

Nguyen Ngoc Anh

AAI2021A

21070304

Advisor: MSc. Bui Thanh Tung

Abstract

Science and technology are always developing in all fields, especially manufacturing industries. The need to improve and upgrade the production system is always a top priority. One of those systems is an automated product classification system. This system makes production more flexible, saves time and manpower, increases output, and brings high economic benefits and efficiency. Classify products, there are many different methods, but currently, the method of classifying products by color and volume has not been applied much and effectively. Therefore, the topic of "design and construction of product classification system by color and volume" is a highly researched and applied topic, suitable for the development of manufacturing industries. Research and control product classification system using Arduino, Servo motor, proximity sensor, color sensor, loadcell scale, and some other equipment.

Keywords: manufacturing industries, priority, flexible, color sensor, proximity sensor, loadcell scale.

**APPLIED AI/DEEP LEARNING TECHNOLOGY IN MICROARRAY
ANALYSIS TARGETING METABOLIC DISORDERS (DIABETES
TYPE 1/2, OBESITY, GOUT,...)**

CN.NC.SV.22_38

Students:

Phạm Thanh Trường	ICE2020A	20070012
Hoàng Thị Chúc	ICE2019A	19071589
Đỗ Văn Quý	ICE2017A	17071395
Đỗ Thị Trung Anh	BDA2021C	21070686
Giáp Lê Hoàng	ICE2021A	21070836

Advisor: Dr. Chu Dinh Toi

Abstract

The expedient detection and precise diagnosis of cerebrovascular accidents is critical for the administration of efficacious therapeutic interventions and the preservation of neuronal tissue. Expeditious access to medical care and treatment modalities can substantively ameliorate clinical outcomes and attenuate long-term disability for patients afflicted with cerebrovascular disease. Recent advances in machine learning, particularly deep neural networks, have achieved state-of-the-art performance on myriad medical image analysis tasks. In this work, we propose to develop and deploy a deep learning-based methodology to detect and categorize strokes from brain magnetic resonance images. A deep learning network can be trained on a vast corpus of magnetic resonance images to learn representations of diverse types of strokes, including ischemic and hemorrhagic subtypes. These learned features can then be exploited to construct a stroke detection and classification system. Such an automated system could assist physicians in analyzing magnetic resonance images with greater efficiency and accuracy, enabling faster diagnosis and superior treatment for patients with cerebrovascular disease. We aim to conceive and evaluate multiple deep learning architectures for the detection and classification of strokes from brain magnetic resonance images.

Keywords: expedient detection, precise diagnosis, cerebrovascular, neuronal tissue.

DEPRSSION TENDENCY INFERENCE FROM SPEECH SIGNALS BASED ON DEEP NEUTRAL NETWORKS

CN.NC.SV.22_40

Students:

Nguyen Duc Quang Anh	AIT2022A	22070306
Nguyen Thi Thu Hien	AIT2022B	22070073
Do Xuan Minh Duc	AIT2022A	22070047
Vu Quan	AIT2022B	22071105
Nguyen Van Thanh	AAI2022A	22070445

Advisors: Dr. Kim Dinh Thai, Dr. Ha Manh Hung

Abstract

The study uses deep networking architecture to determine whether the voice input of the speaker is a person who is depressed or is prone to depression. And the research takes the computational steps of its deep learning architecture through the use of TensorFlow and cameras. The study consists of five main sections: The first section mainly for us to discuss the symptoms of depressed patients and how they react to the outside world. The second part uses deep learning models on voice recognition to detect depression. The third part will show people the difference between the current popular neural network architecture and the imagined modified architectural style. The fourth part will tell us after the data generated by the imaginary network is obtained through experimental subjects and the original neural networks and the neural network of the reference covers are compared. Finally, current progress and future directions are discussed and discussed. The in-depth learning model discussed in this study is based on the structure of CNN-LSTM, through multiple revisions and adjustments and changes accordingly. It is hoped that a better model could be obtained, but the test results for current research are still not as real as we expect. Ideally, the highest accuracy rate can only be reached up to 75%, which in the future will add more new structures and different combination styles to improve the rate of judgment that is increasingly accurate. Hopefully, through this study, we can discover a model that can judge emotional mobility and have a higher accuracy.

Keywords: architecture, prone, imaginary network, multiple revisions, CNN-LSTM.

DETERMINANTS OF UNSAFE SEXUAL BEHAVIORS AMONG ADOLESCENTS: EVIDENCE FROM VIETNAM

KT.NC.SV.22_01

Students:

Vu Hai Yen	IB2020A	20070389
Nguyen Thanh Hai	IB2020C	20070159
Nguyen Thi Ngoc Bich	IB2020D	20070112
Le Ngo Thanh Thao	IB2020A	20070017
Luu Truong An	BDA2022	22070873

Advisors: Dr. Nguyen Thi Kim Oanh; MA. Chu Huy Anh

Abstract

With the growing prevalence of social media and its potential influence on adolescent behavior, it is important to understand the relationship between social media use and unsafe sexual behaviors, as well as the role of knowledge and sexual values in this relationship. This research project aims to investigate the impacts of social media use, knowledge, and sexual values on unsafe sexual behaviors among adolescents in Vietnam. By doing this, our study provides a better understanding of the factors that contribute to unsafe sexual behaviors and may inform interventions aimed at reducing risky sexual behaviors among adolescents in Vietnam. **Design/Methodology/Approach:** The research involved the distribution of a survey questionnaire to 826 students, out of which only 265 students confirmed having engaged in sexual activity. The collected data was analyzed using Partial Least Square-Structural Equation Modelling, which was based on responses from adolescents who reported having had sexual intercourse. **Findings:** Our findings indicate that social media exposure to sex and sexual knowledge did not have a significant effect on awareness of unsafe sexual behaviors among adolescents. However, communication between parents and sexual values was found to have significant impacts on awareness of unsafe sexual behaviors. In turn, adolescents with better awareness of unsafe sexual behaviors are more likely to practice unsafe sexual behaviors than their counterparts. **Implications:** The study suggests that parental communication and emphasizing the importance of sexual values may be effective strategies for promoting safe sexual behaviors among adolescents in Vietnam.

Keywords: media use, knowledge, sexual values, unsafe sexual behaviors, adolescents.

INFLATION AND ITS EFFECTS ON ECONOMIC GROWTH IN THE WORLD CONTEXT

KT.NC.SV.22_04

Students:

Vu Bich Diep	IB2020C	20070125
Nguyen Thi Linh	IB2018D	18071139
Truong Quynh Anh	IB2020C	20070104
Nguyen Thi My Uyen	IB2020B	20070379
Hoang Thi Tra	IB2020D	20070354

Advisor: Dr. Le Thi Thu Huong

Abstract

Inflation is a topic that gets much attention, especially in the context of the recent world economy and after the covid 19 pandemic. This study aims to thoroughly analyze the current state of inflation worldwide and its relationship with economic growth. To achieve this objective, a comprehensive examination is conducted using a sample of 45 countries over the period spanning 2010 to 2021.

The research employs multiple linear regression models to explore whether inflation has an impact on the relationship between inflation and economic growth. Moreover, the study investigates how these effects differ between two distinct groups of countries: developed nations and developing economies.

The findings of the study reveal compelling evidence that the inflation rate exerts a negative influence on the economic growth rate. These results are robust across both developed and developing countries, suggesting that the detrimental impact of inflation on economic growth is consistent across different economic contexts.

Overall, this research paper sheds light on the intricate dynamics between inflation and economic growth, offering valuable insights for researchers, policymakers, and stakeholders interested in understanding and addressing the economic challenges posed by inflationary pressures in today's global landscape.

Keywords: inflation, economic growth, developed countries, developing countries

EMPLOYING REGRESSION AND ARTIFICIAL NEURAL NETWORK TO ANALYZE AND PREDICT ACADEMIC PERFORMANCE OF COLLEGE STUDENTS IN VIETNAM

KT.NC.SV.22_05

Student:

Pham Ngoc Canh

IB2019E

19071003

Advisor: Dr. Nguyen Thi Kim Oanh; MA. Tran Thi Thuy Anh

Abstract

Firstly, the study identifies the positive and negative factors that impact on student performance. Specifically, the research focuses on effects of student characteristics namely academic performance, financial status, using phones in class, working a part-time job, health, and sleep. Secondly, we build an academic performance prediction model for Vietnamese college students. Design/Methodology/Approach: The research is based on a survey questionnaire delivered to a sample of 318 students. MLR and MLP model is used for data analysis. Findings: The regression model indicates that students who have daily expenditures fully covered tend to have better academic performance. However, students who experience sudden financial difficulties more often have higher academic achievement suggesting that such difficulties positively impact on student academic performance. Moreover, the MLR model indicates that Job, PhoneinClass are the factors that negatively affect academic performance with increased working hours and more phone use leading to lower achievement. Another significant factor is health, which has a positive impact on student academic performance. This study proved that the MLP neural network model can accurately predict a student's GPA using six factors: Spending, FinDiffi, PhoneinClass, Sleep, Job, and Health. The most important three factors in this model are health, phone use in class, and meeting daily financial needs. Implications. Moreover, the study also provides some information about the characteristics of International School such as financial status, working a part-time job, and self-assessment health. Practically, this study attempts to provide empirical evidence to reflect learner characteristics and its impact on academic performance at International School, Vietnam National University Hanoi.

Keywords: Performance, multi-layer perceptron, multiple linear regression, artificial neural network, college students.

FACILITATING STUDENT KNOWLEDGE SHARING: A SELF-DETERMINATION PERSPECTIVE**KT.NC.SV.22_06****Student:**

Vuong Thi Lan Anh

IB2019A1

19071308

Advisor: Dr. Tran Cong Thanh

Abstract

Purposes/aim: This study develops a model of factors facilitating Vietnamese university student knowledge sharing. The model brings better understanding and contributes to enhance student knowledge sharing and learning in higher education. **Design/Methodology/Approach:** A questionnaire survey was designed and data were obtained from 304 students at Vietnam National University, Hanoi. Data was then analyzed using SmartPLS software. **Findings:** From a self-determination approach to student knowledge sharing, data analysis has shown that Vietnamese student intrinsic motivation of knowledge sharing is influenced by rewards and class climate. Teacher-empowering leadership has no impact on student knowledge sharing. Students with intrinsic motivation will share knowledge with other students, but will not share knowledge with teachers unless they interact with the materials. Students who share knowledge with other students and teachers gain better grade and creativity. **Implications:** The self-determination perspective provide a better understanding of why and how students share knowledge and gain better grade and creativity. This study contributes to the literature of knowledge management within the context of higher education. It indicates that rewards and class climate are the key extrinsic motivations that lead to student intrinsic motivation of knowledge sharing, while teacher empowering leadership has no impact. Students with intrinsic motivations and engaging with materials will share knowledge with not only other students but also teachers and gain better grade and creativity. The results of this study have implications for higher education institutions who seek to enhancing student learning and creativity through knowledge sharing with peers and teachers. **Limitation:** This study focuses mainly on the context of Vietnamese higher education.

Keywords: Student knowledge sharing; Self-determination; Extrinsic motivation..

**FACTOR AFFECTING THE ENTREPRENEURIAL INTENTION OF
UNIVERSITY STUDENTS IN HANOI****KT.NC.SV.22_07****Students:** Do Phuong Anh ACF2021D - 20073250, Le Tran Ngoc Anh ACF2021D - 21073235, Dinh Thi Xuan ACF2021A - 20073256.**Advisor:** Assoc. Prof. Dr. Nguyen Van Dinh

Abstract

This study was conducted to better understand the factors affecting the entrepreneurial intentions of students, especially students in Hanoi. From there, we hope to be able to find ways to help improve the difficulties in the start-up process. Besides, we also want to help students have the right view and necessary knowledge for students if they intend to start a business. From there can arouse passion and curiosity about entrepreneurship. Design/Methods/Approaches: We used the Likert scale and collected data from 37 responses from many students at many different universities. Besides, we also conducted direct interviews with some students to better understand the difficulties and some of their psychology when talking about starting a business. Finding: We have given a small outline of the factors that influence students' entrepreneurship. By collecting responses, we also found that not only education about entrepreneurship can influence decisions, but also attitudes about entrepreneurship and subjective normative effects. These effects sometimes seem not too big or not too strong, but they can completely make starting a business difficult. The most troublesome thing is that some students today do not really have access to knowledge about entrepreneurship, which can completely lead to difficulties, easy failure and unfinished business. The collection of information below not only helps students have a deeper insight, but we hope that this research paper can help teachers or businesses to have more information, thereby can give students more opportunities to develop in the future.

Keywords: Entrepreneurship, Entrepreneurship Intention, Entrepreneurship attitude, Perceived Behavioral Control, Subjective Norms, Entrepreneurship Education.

EVALUATION OF FINANCIAL PERFORMANCE OF FIRMS IN THE LOGISTICS IN VIETNAM PERIOD 2018-2022

KT.NC.SV.22_09

Students:

Nguyen Thi Thuy Duong	AC2019B	19071126
Phan Thi Ngoc Linh	AC2019B	19071191
Ho Huyen Trang	IB2019E1	19071522
Vu Thu Ha	AC2019B	19071139
Nguyen Thi Hue	IB2019G	19071369

Advisor: Dr. Nguyen Phu Hung

Abstract

In Vietnam, there have been many studies in the financial performance of firms. However, we have not seen a thesis on Logistics industry. In addition, most studies only conduct analyses on firms within a specific industry, while investors also need a cross-industry analysis to compare different alternative opportunities. Therefore, in this study, We used a regression model to find the impact of Capital Adequacy, Management Efficiency, Liquidity, and Size factors to the performance of firms in Logistics industry. We also did a comparison to the Food industry to get a wider view of context. Logistics and Food Manufacturing industries are chosen for their critical contributions to the national economy and for data availability. The study found that different industries have different driving factors, and the performance of them are very different during the period of analysis.

Keywords: Business Result Analysis; Regression; Logistics; Comparative study; Capital Adequacy; Management Efficiency; Liquidity; Size

EVALUATE THE CHANGE IN HAIPHONG TOURISTS' PERCEPTION AND FACTORS THAT AFFECT THE CHANGE IN TOURISTS'S PERCEPTION

KT.NC.SV.22_10

Students:

Do Ha Vy	IB2020B	20070386
Duong Minh Hieu	IB2021B	21070675
Tran Thi Minh Hang	IB2020C	20070170
Tran Minh Hien	IB2020C	20070176

Advisor: MA. Nguyen Thi Kim Duyen

Abstract

This study explores the factors affecting tourists' perception of Hai Phong, a bustling port city in North Vietnam. The city's rapid growth, rich cultural heritage, and diverse tourist resources make it a must-see tourist destination. However, with the rise of social media platforms, tourists increasingly use them to gather information and share their experiences. It has resulted in a significant change in the way tourists perceive the destination. This study uses a mixed approach, including quantitative and qualitative data, to identify the key factors influencing tourists' perception of Hai Phong. It provides stakeholder insights into local relevance to enhance the attractiveness and competitiveness of the city. To this end, we conducted an online survey of 150 people. The survey included questions on aspects of people's perception of Hai Phong. The results show that DMO-generated social media communication positively influences tourists' perception, the city's image, and brand engagement destination. Tourist-generated media communication also significantly impacts the perception and intention to return visitors. The study concluded that local governments and tourism management agencies in Hai Phong should focus their social media efforts on improving the quality and quantity of visual content about the city. Interacting with tourists by responding to their comments and reviews on social media is also crucial for forming positive perceptions. These findings provide practical implications for destination marketing and management.

Keywords: DMO-generated, qualitative data, Tourist-generated.

**“GAMIFICATION”: AN EMPIRICAL STUDY ON THE IMPACT OF
GAMIFICATION ELEMENTS ON CUSTOMER ENGAGEMENT AND
BRAND ATTITUDE IN THE MARKETING CONTEXT**

KT.NC.SV.22_11

Students:

Nguyen Quang Duy	IB2021B	21070547
Phung Phuong Uyen	MIS2021B	21070713
Tran Thi Kim Ngoc	MIS2021B	21070652
Bui Thu Hien	IB2021B	21070467

Advisor: Dr. Bui My Trinh

Abstract

The introduction of diverse applications with gaming-like features has become a rapidly expanding practice in the business world. As a result, numerous businesses are implementing gaming techniques, and rewards, in particular, to increase customer engagement or attitude toward the brand. Therefore, the purpose of this research paper is to grasp how the elements of the game affect customer engagement and brand attitude in the marketing context with the mediating effect of perceived enjoyment, perceived hedonic value, and social interaction in terms of marketing strategies. The results, which adopted a quantitative methodology, provided empirical support for the use of gamification components such as fun, mechanics, dynamics, aesthetics, competition, and reward, as well as mediating factors such as perceived enjoyment, perceived hedonic value, and social interaction, as predictors of customer engagement and brand attitude by adopting mechanics-dynamics-aesthetics (MDA) framework. The findings of the research indicated that competition as a factor of gamification can significantly affect social interaction, and dynamics has a significant impact on perceived enjoyment. Additionally, the research paper discovered that perceived hedonic value was associated with brand attitude but was not significantly related to customer engagement. The findings of this research have implications for the study.

Keywords: Gamification elements, customer engagement, brand attitude, Mechanics-Dynamics- Aesthetics (MDA) framework.

**CONVENIENCE STORE CHAINS: EXPERIENCES IN THE WORLD
AND RECOMMENDATIONS FOR ATTRACTING FOREIGN
INVESTMENT AND DEVELOPMENT IN HANOI**

KT.NC.SV.22_12

Student:

Nguyen Ngoc Mai

AC2022B

22070994

Advisor: Dr. Le Thi Thu Huong

Abstract

Convenience stores are retail models with a variety of items and are integrated with many bill payment services. Currently, this form of business is very popular and strongly invested, and it is present in all major cities. This study aim to give appropriate policy suggestion for Hanoi to attract more foreign investments in convenience store chains. To achieve the result, international experiences in secondary sources have been collected, thereby comparing with the actual situation of this market in Hanoi; with two typical cases, Poland and China. It shows that countries with a more modern retail structure attract more FDI than countries with a more traditional structure. Also, satisfaction between the parties in terms of legal and administrative procedures is an urgent problem. For Hanoi, reforming the viewpoint on administrative procedures, creating further simplification of administrative procedures in the assessment and license, and supporting favorable conditions for foreign invested projects after being licensed to deploy quickly into production and business are suggestions made to improve the attracting FDI in the convenience store sector in Hanoi. Furthermore, Hanoi should promote cooperation, seek partners to develop and harmonize the attraction between internal resources and FDI, in order to show the determination to integrate, attract investment, so that Hanoi is worthy of a successful start-up center of the country, compared to other provinces, especially Ho Chi Minh City.

Keywords: convenience stores, international experiences, foreign investment

**THE HETEROGENEOUS IMPACT OF SOCIAL DISTANCING ON
HOUSEHOLD-LEVEL ECONOMIC PERFORMANCES: EVIDENCE
FROM A LARGE SURVEY IN VIETNAM**

KT.NC.SV.22_14

Students:

Vu Duy Trung	IB2020C	20070371
Nguyen Dieu Hanh	IB2019C	19071350

Advisor: MA. Le Van Dao

Abstract

This study utilizes a large survey dataset surveyed by Facebook and academic institutions to examine the heterogeneous impact of social distancing on household-level economic performances, employing the generalized method of moments (GMM) estimator and controlling multi-channel fixed effects. In particular, in our case study, the Vietnamese government's sudden social distancing policy, which is seen as a quasi-experiments, has created favourable conditions in determining the causality of this nexus. The results confirm the negative impact of social distancing on unemployment likelihood, especially in the group of women and the group with lower education levels. Notably, we also find that people with poorer economic status (i.e., higher rates of unemployment and food insecurity) are more heavily harmed by social distancing practices. Therefore, the findings imply the need for welfare programs for the disadvantaged post-COVID-19.

Keywords: Social distancing, unemployment likelihood, food shortages, financial insecurity

FACTORS AFFECTING CONSUMER BEHAVIOUR TOWARD HANOI STREET FOOD

KT.NC.SV.22_15

Students:

Dao Thi Thu Huyen	IB2020D	20070193
Tran Thi Minh Hien	IB2020D	20070177
Nguyen Ngoc Linh Trang	AC2020A	20070630
Truong Hue Linh	AC2020A	20070520

Advisor: TS. Lê Thị Mai

Abstract

Street food has become an increasingly popular option for consumers in many parts of the world. According to Kivela, Inbakaran, and Reece (1999), street food is defined as "prepared, cooked and/or sold by vendors on streets and other public places for immediate consumption or take away" (p. 101). Street food has become a popular option for consumers worldwide due to its convenience, affordability, and unique flavors. In recent years, research has focused on identifying the factors that influence consumer behavior towards street food. This literature review discusses past behavior, attitude, perceived behavioral control, subjective norms, smartphone usefulness, and food quality as factors affecting consumer behavior towards street food. This study aims to explore the factors that influence the behavior of consumers towards Hanoi street food vendors. Using a quantitative research approach, data was collected from 181 respondents aged between 18 and 25 through an online survey and using the analysis technique is Statistic Package for Social Science (SPSS). The findings indicate that purchase intention, past behavior, attitude, food vloggers, food quality and smartphone usefulness affect consumers' behavior towards Hanoi street food vendors. The study concludes that food quality and price are the important factors that affect consumers' decision-making when choosing street food vendors in Hanoi. The knowledge of the factors influencing customers' choices to buy street food in Hanoi would be improved by the study. This study especially helps to improve knowledge of how many factors affect how people consume street food

Keywords: Street food, consumer behavior, analysis technique.

THE LIQUIDITY ON FIRM PERFORMANCE: EVIDENCE FROM VIETNAM

KT.NC.SV.22_16

Student:

Pham Thanh Van

ACF2021B

ACF2021B

Advisor: Dr. Le Thi Thu Huong

Abstract

Vietnam has been a potential emerging stock market for high profit and flexibility in the Southeast Asian area in recent decades. At the same time, stock liquidity plays an important role in the financial market, especially during a financial crisis. This study investigates the relationship between stock liquidity and firm performance based on data from 101 industrial Vietnamese firms and Stata is optimal for data analysis. A positive relationship between liquidity and firms' performance is found. It is robust by different proxies for firm performance and liquidity measures of which a newly proposed price-response ratio, along with common liquidity indicators such as bid-ask spread and Amihud (2002), as well as a pre-Covid19 sub-sample. This results contributes to the literature on current market microstructure in several ways. First, it aims to analyze the relevance of stock market liquidity on corporate performance in emerging markets by presenting an analysis based on a unique dataset of Vietnamese firms listed on the Hanoi Stock Exchange to explore the effect of stock market liquidity on firm performance in our sample of Vietnamese companies. Besides, this study gives investors both international and domestic a well-founded perspective before putting money into the Vietnam stock market. It is also concluded from this paper that the result provides a temporary firm monitoring method for corporate administrative departments to govern the business from a long distance without many managerial reports. The numbers show that in normal conditions the higher liquidity the stocks are, the better the performance is but in abnormal conditions like surprise epidemic, Covid19, for example, that relation is adverse. It is suggested that the examination of the effect of liquidity on firm performance in unusual situations is an interesting area which may include mysteries for researchers to discover.

Keywords: Liquidity, Firm Performance, Positive Relationship, Vietnam.

**THE HETEROGENEOUS IMPACT OF COVID-19 ON
UNEMPLOYMENT AND MENTAL HEALTH: EVIDENCE IN A
TRANSITIONAL COUNTRY**

KT.NC.SV.22_17

Students:

Pham Nhat Minh	AC2020B	20070537
Tran Lam Son	IB2020G	20070319
Le Phuong Anh	IB2020G	20070079

Advisor: MA. Le Van Dao

Abstract

The study is based on a large-scale survey and employs generalized method of moments (GMM) estimators to examine the relationship between infection and mental health outcomes in Vietnam. The results show that an increase in infection rates leads to a corresponding increase in nervousness, depression, and worry, with certain demographic groups, such as female retirees and elderly with below high school education, being particularly vulnerable. We also confirm that those with pre-existing mental health conditions will be particularly affected. Notably, regarding risk factors, the study also found that pre-existing mental health conditions, limited access to healthcare services, and strict social distancing measures have contributed to the harmful effects of the pandemic on mental health. The findings emphasize the importance of addressing these risk factors, mainly through government support policies, in order to mitigate the negative impact of COVID-19 on mental health.

Keywords: COVID-19 infection, mental health, generalized method of moments (GMM)

**FINANCIAL DISTRESS PREDICTION USING MULTILAYER
PERCEPTRON NEURAL NETWORK: EVIDENCE FROM VIETNAM
KT.NC.SV.22_20**

Students:

Nguyen Hoang Lan Anh	IB2020C	20070086
Ta Thi Minh Anh	IB2020E	20070111

Advisor: Dr. Nguyen Thi Kim Oanh

Abstract

The study is conducted to provide a warning model of financial distress for listed companies in Vietnam. This could help investors, creditors, and managers understand the firm's financial health so that they can make timely decisions. Design/Methodology/Approach: This paper presents a financial distress prediction model by combining a multi-layer perceptron artificial neural network (MLP-ANN) with the traditional Altman Z-Score model. This hybrid model was based on financial data collected from 509 listed companies in Vietnam with total of 7126 observations from 2006 to 2019. The model was built for all listed companies and by industry (manufacturing, service, and trade) to compare the accuracy of the models. Findings: The result of empirical analysis shows that our model can correctly classify up to 98.4% of the company's financial position, in which, the company's financial status is divided into 3 zones: safe, danger, warning. Moreover, the result by industry shows that the model for the trade industry achieve the highest accuracy to classify the financial circumstances of the firm (99,2%), followed by service industry with 98,6%, while the model of manufacturing industry could correctly classify at 97,4%. Implications: The result points out that the combined model of Z-score and ANN is also suitable and applicable in Vietnam. Investors, securities companies, banks can apply to forecast the company's financial status early, thereby to make informed decisions. Originality/value: The model can be applied to make forecasts to avoid the risks of financial distress.

Keywords: Financial distress prediction, multi-layer perceptron artificial neural network, Altman Z-Score.

FACTORS DETERMINING THE INTENTION TO USE P2P LENDING KT.NC.SV.22_21

Students:

Tran Thi Cam Tu	IB2020B	20070374
Nguyen Ha My	IB2020B	20070257
Phan Nhat Minh	IB2020B	20070098
Pham Mai Anh	IB2021A	21070038

Advisor: Dr. Bui My Trinh

Abstract

This study investigates the factors determining the intention to use peer-to-peer (P2P) lending platforms. P2P lending is a relatively new financial product that allows individuals to lend money to each other directly, without the need for a bank or other financial institution. P2P lending platforms have grown in popularity in recent years, as they offer borrowers access to lower interest rates and lenders the opportunity to earn higher returns than they would with traditional investments.

The research involved a comprehensive review of the literature on P2P lending and data collection from 232 respondents using an online survey. The study utilizes the Partial Least Squares Structural Equation Modeling (PLS-SEM) to identify the factors that influence P2P lending platform adoption.

The findings reveal that perceived usefulness, perceived ease of use, trust, and social influence are significant determinants of the intention to use P2P lending platforms. Perceived usefulness refers to the extent to which individuals believe using a P2P lending platform will help them achieve their goals. The degree to which users believe that using a P2P lending platform is simple to learn and utilize is referred to as perceived ease of use. The assumption that a P2P lending platform is reputable and trustworthy is called trust. Social influence refers to the influence of friends, family, and other social networks on an individual's decision to use a P2P lending platform.

Keywords: Fintech, P2P Lending, Trust, Reachability, Social Influence

EVALUATING THE PERFORMANCE OF TEXTILES ENTERPRISES IN ASIA THROUGH THE DEA & MALMQUIST MODEL

KT.NC.SV.22_22

Students:

Chu Ngoc Linh	IB2020B	20070221
Tran Thi Thanh Thuy	IB2020B	20070340
Vu Phuong Phao	IB2020A	20070333

Advisors: Dr. Ho Nguyen Nhu Y, Dr. Phan Bao Trung

Abstract

Background: The textile industry played a vital role in the industrial revolution 4.0, particularly in Asian countries such as Vietnam, Taiwan, India, Bangladesh, and Indonesia. Exporting textiles and garments provides a significant source of foreign currency revenue to purchase machinery and equipment, modernize production, and serve as a foundation for economic development. However, in recent years, the industry has faced many limitations due to social impacts, such as the COVID-19 pandemic and the Russia-Ukraine conflict, causing disruptions in the supply and production stages. In this context, it is essential to re-evaluate the supply chains of textile companies and develop solutions to overcome these challenges. **Method:** Therefore, this study will use the data envelopment analysis (DEA) model to evaluate the supply chain efficiency of 34 companies in several Asian countries and offer appropriate solutions. The data used in the article will be analyzed using the Malmquist TFP synthetic yield estimation model over time, combined with catch-up and frontier analysis. **Results:** Empirical results show that the correlation between input and output is strong and they move in the same direction because the data is positive. Therefore, this data can be applied to the DEA model to analyze the efficiency of textile companies. **Conclusion:** The companies' operating efficiency is not high as they have yet to adopt advanced technical technologies for production. Vietnam, Indonesia and Bangladesh have made initial productivity improvements through production technology equipment, while India and China have also made progress but to varying degrees, influenced by external factors.

Keywords: textile industry, garments, limitations, social impacts, factors.

INVESTIGATING FACTORS INFLUENCING THE CONSUMER'S PURCHASING INTENTION ON E-COMMERCE PLATFORMS OF GENERATION Y AND GENERATION Z IN VIETNAM

KT.NC.SV.22_25

Students:

Tran Kim Thanh	IB2022D	22070465
Tran Xuan Mai	IB2022C	22070478
Ha Tuyet Mai	IB2022D	22070453
Nguyen Tuan Kiet	IB2022B	22070363
Cao Do Thuy Tien	AC2022B	22071069

Advisors: Dr. Nguyen Phuong Mai, MA. Nguyen Thi Kim Duyen

Abstract

This study investigated factors that influence the consumer's purchasing intention on the e-commerce platforms of Generation Y and Generation Z in Vietnam. The quantitative method was utilized in this study. The paper employs the "Technology Acceptance Model" (TAM) as the basis for the study and incorporates Transaction Security as a new construct to enhance the predictive power of the proposed model further. In addition, the data is analyzed by collecting a sample of 278 Gen Z-ers and Gen Y-ers in Vietnam. SPSS was used to analyze the questionnaire's data. The outcome indicates that Generation Y and Generation Z were raised in the digital age and are familiar with using technologies for online shopping; Therefore, there are no generational differences in the effects of the ease of use and usefulness on ongoing purchase intentions. Potentially, Vietnamese online businesses ought to create marketing strategies to change the way consumers perceive the worth of e-commerce platforms and present a more sensible, practical, and beneficial alternative. Businesses should also show the two generations the many benefits of online shopping (such as time savings, the wealth of information, special offers, and the freedom to make purchases). This research varies from past studies by taking into account the aspects influencing the purchase intention of Gen Y and Gen Z in a developing country, which is Vietnam.

Keywords: consumer's purchase intention, e-commerce platforms, Generation Y, Generation Z.

**APPLYING THE GRI STANDARD FOR THE EVALUATION OF
ENVIRONMENTAL RESPONSIBILITY IN MANUFACTURING AND
ENERGY INDUSTRIES AND ITS RELATION TO THE FIRM'S
FINANCIAL PERFORMANCE IN VIETNAM**

KT.NC.SV.22_27

Students:

Do Vu Duy	AC2020A	20070429
Vuong Duc Anh	IB 2019	19071307
Tran Thi Ninh	AC2019D	19071226
Nguyen Phuong Thao	AC 2019B	19071241
Phung Duc Tan	AC2020D	20070598

Advisor: Dr. Nguyen Thi Kim Oanh

Abstract

This study seeks to assess corporate sustainability responsibility (CSR) through evaluating environmental responsibility disclosed corporate sustainability reporting of listed manufacturing and energy corporations in Vietnam using a framework designed by the Global Sustainability Standard Board, General Reporting Initiatives (GRI) G3. Subsequently, the study investigates dual relationships between CSR and firm's financial performance. *Design/Methodology/Approach:* This study employs both qualitative and quantitative methods. First, the annual and sustainability reports from 2017 to 2021 of 100 listed manufacturing and energy firms on the Vietnam Stock Exchange were scored by employing content analysis method. Subsequently, the dual relationship between CSR and the firm's financial performance was investigated by quantitative analysis using Stata. *Findings: Implications:* This research indicates the implementation of selected energy and manufacturing listed companies under GRI G3 standard through the assessing, analyzing, and scoring results, therefore, conducting top 10 companies with the highest score of reporting performance. In addition, it has been pointed out that there are positive correlations between the performance of environmental disclosers and financial performance.

Keywords: corporate sustainability responsibility (CSR), (GRI), qualitative, quantitative, disclosers.

**CULTURAL INTELLIGENCE AND ITS ROLE IN SUCCESSFUL
INTERNATIONAL BUSINESS OPERATION: THE CASE OF FOREIGN
FIRMS IN VIETNAM**

KT.NC.SV.22_28

Student:

Oluwafemi David
Olaribigbe

IB2019A

19071646

Advisor: Dr. Le Thi Mai

Abstract

This research focuses on the assessment of cultural intelligence (CQ) among foreign firms in Vietnam and its relationship with the success of their international operations. A survey of 200 employees from various foreign firms operating in Vietnam was conducted, and the data was analyzed using both descriptive and inferential statistics. The results indicate that the overall level of CQ among employees is moderate, and there are significant differences in CQ scores based on demographic factors such as age, gender, education level, and job position. Moreover, a positive correlation was found between CQ and the success of international operations. The study also identifies factors that contribute to the development of CQ, including cross-cultural communication skills, adaptation to local cultural norms, and a culturally diverse workplace. Practical recommendations for foreign firms in Vietnam to improve their CQ and enhance their success in international operations are provided based on the study's findings. This research highlights the importance of cultural intelligence in the context of international business and provides insights for foreign firms operating in Vietnam to improve their CQ and achieve better outcomes in their international operations.

Keywords: cultural intelligence (CQ), success, firms, correlation, international business, outcomes.

DIGITAL TRANSFORMATION IN BUSINESS PROCESS OF BANK BRANCHES

KT.NC.SV.22_29

Students:

To Mai Linh	AC2019A	19071192
Nguyen Hai Anh	IB2019D	19071289
Nguyen Thanh Mai	AC2019D	19071200
Nguyen Dao Ngoc Nhi	IB2019D	19071453
Nguyen Thi Kieu Trinh	AC2019B	19071266

Advisor: Dr. Nguyen Phu Hung

Abstract

This research study examines the digital transformation of business processes in bank branches. With the rapid advancement of technology, banks are now utilizing digital tools to enhance their operations, increase efficiency, and improve customer experience. This research aims to explore the key drivers, challenges, and benefits of digital transformation in bank branches, as well as the impact on employees and customers. Data was collected through a combination of surveys, interviews, and case studies of various banks. The findings suggest that digital transformation has the potential to revolutionize the banking industry, leading to significant improvements in customer satisfaction, cost reduction, and revenue growth. However, it also poses several challenges, such as the need for significant investments in technology and employee training. This research provides valuable insights for bank managers and policymakers to make informed decisions about their digital transformation strategies.

Keywords: business processes, bank branches, customer experience, cost reduction, revenue growth.

**THE IMPACT OF FINANCIAL LITERACY AND FINANCIAL
INCLUSION ON PERSONAL SAVING BEHAVIOR IN VIETNAM**
KT.NC.SV.22_31

Students:

Nguyen Danh Viet Anh	IB2020C	20070084
Nguyen Thi Bao Ha	IB2020A	20070153
Vu Lan Huong	IB2020D	20070210
Le Do Viet Hung	IB2020A	20070190

Advisor: Dr. Do Phuong Huyen

Abstract

In today's fast-paced and complex financial environment, the importance of financial literacy is becoming increasingly evident. The ability to understand and manage personal finance is essential to achieving financial security and independence. However, research has revealed that many people lack the financial information and expertise required to make wise financial decisions. From there, the study seeks to provide a summary of adult literacy levels among Vietnamese adults and look into the relationship between individual saving habits and financial literacy. Design/Methodology/Approach: The research is based on data collected from a sample of 429 respondents from several prominent cities in Vietnam. The survey is created based on the OECD toolkit for measuring Financial Literacy and Financial Inclusion version 2022 OECD (2022), a standard survey for gathering information on financial literacy and financial inclusion. Findings: The study found that financial literacy, financial inclusion, and saving behavior in Vietnamese adults are closely related. Financial literacy has a significant impact on both saving behavior and financial inclusion. Financial knowledge and financial behavior have a positive impact with financial inclusion. The study also found that savings behavior is strongly influenced by financial knowledge and lower levels of education are associated with lower financial understanding, financial inclusion, and financial literacy. In addition, people with higher incomes have a higher financial literacy level.

Keywords: financial literacy, evident, financial security, behavior, incomes, survey, Financial Literacy, Financial Inclusion.

**FACTORS INFLUENCING ON STUDENT ENTREPRENEURIAL
MINDSET: THE CASE OF IS-VNU****KT.NC.SV.22_32****Student:**

Le Minh Chau

DUAL-MKT2021A

21070755

Advisor: Dr. Tran Cong Thanh

Abstract:

This study develops and examines the process of forming and developing a passion for entrepreneurship in students. From this process, it helps us to recognize the factors that affect students' entrepreneurial thinking. Design/Methods/Approaches: We conducted an interview at Hanoi National University (VNU), a multidisciplinary university in Vietnam, to test the preliminary theoretical framework. In addition, we also conducted interviews with some young people from other universities. We will send them an interview invitation a week in advance to give them time to prepare for the interview properly. We then rely on the interview results to compare with the original factor framework to come to a conclusion. Finding: We have built a conceptual framework that clearly outlines the influence of external factors such as environment, family, school, and personal factors such as personal desire, individual capacity on the process of self-image formation. student entrepreneurship. The results show that personal factors such as desire have the most profound influence on students' decision to start a business. In addition, family is an indispensable element in the whole process from before they start until they succeed or fail. In particular, the results and start-up process will affect students' future entrepreneurial thinking. Whether it is a failure or success after the first start-up, students have the desire to continue starting a business.

Keywords: Entrepreneurship, Entrepreneurship mindset, Individual factor, external factors.

**THE IMPACT OF FDI INFLOWS ON ENVIRONMENTAL QUALITY
AND ECONOMIC GROWTH IN DEVELOPING COUNTRY:
EVIDENCE FROM VIETNAM**

KT.NC.SV.22_33

Students:

Vu Thi Hanh	IB2019C	19071350
Nguyen Thu Ha	AC2020A	20070451
Nguyen Thi Thu Uyen	IB2020A	20070007

Advisor: Dr. Nghiem Xuan Hoa

Abstract

The relationship between Foreign Direct Investment (FDI) and environmental quality has long been a topic of great interest in the international development. As one of the important driving factors, FDI has played a vital role in promoting the economic growth. Although the literature is filled with the positive impacts of FDI on the environment, there is a possibility that FDI can lead to undesirable consequences, such as growth of carbon emissions, environmental deterioration. Utilizing panel data from 1990 to 2019, the purpose of this study is to investigate the impacts of FDI inflows on carbon emissions, and further explore the factors influencing the economic development and regulatory quality by using traditional qualitative methods and, theoretical and quantitative methods. The approach is statistical and descriptive in nature, and it is used to assess the current state of the qualitative link between environmental quality and FDI. Empirical evidence indicates that FDI and financial growth have a favorable influence on environmental quality, especially the quantity of carbon emissions. Furthermore, by decreasing environmental standards, corruption facilitates the entrance of low-quality FDI, reduces the spillover impact of FDI, and indirectly contributes to further environmental degradation. Finally, this paper suggests that the Vietnamese government improve business regulations by strengthening oversight of government departments, restricting FDI or curbing corruption in local government, and increasing government spending on education and R&D to improve domestic businesses' human capital and learning capacity.

Keywords: Foreign Direct Investment (FDI), vital role, literature, carbon emissions.

FACTORS IMPACTING PARENT-CHILD SEXUAL COMMUNICATION IN VIET NAM

KT.NC.SV.22_08

Students:

Nguyen Ngoc Mai	AC2021B	21070207
Pham Anh Minh	IB2021C	21070208
Nguyen Thi Phuong Linh	AC2021B	21070507
Doan Thi Diem Quynh	IB2021B	21070202
Nguyen Thuy Linh	AC2021B	21070225

Advisors: Dr. Nguyen Thi Kim Oanh, MA. Chu Huy Anh

Abstract

Sexual communication between parents and children play an important role in preventing children's unsafe sexual behaviors, which is considered a principal means of transmitting sexual values, beliefs, expectations, and knowledge between parents and children. Therefore, this study aims to investigate factors impacting parent-child sexual communication. Design/Methodology/Approach: Online questionnaire was delivered to 115 parents having adolescent children, which subsequently was quantitatively analyzed using Structured Equation Modelling (SEM) with Smart-PLS software. Findings: This research contributes to the current literature regarding factors impacting parent-child sexual communication. Specifically, the study finds that parent's reservations are negatively correlated with frequency of parent-child sexual communication (PCSC), meaning that higher number of reservations is synonymous to lower frequency of PCSC. Additionally, parent's knowledge is also proven to be positively correlated with frequency of PCSC, which indicates a high level of knowledge regarding sexual health is synonymous to a higher frequency of PCSC. Implications: The research findings help determine factors affecting PCSC in the text of Vietnam, providing future researchers with empirical evidence that can be utilized to construct a better framework for sexual education. Also, these findings reinforce the notion that sexual communication between parents and adolescents can be universally challenging, but might benefit child sexual education.

Keywords: Parent-child communication, Sex education, parent-child sexual.

RISKS OF CRYPTOCURRENCY: COVID-19 EPOCH

KT.NC.SV.22_34

Students:

Genilda Felicia de Sousa Mendes	AC2021B	21070919
Elis Chambalanda	IB2019A	19071002
Oni Damilola	ICE2021A	21070917
Vu Minh Phuc	BDA2019A	19071579

Advisor: MA. Nguyen Thuy Trang**Abstract**

This academic research paper examines the risks associated with cryptocurrency, with a specific focus on the Covid-19 pandemic. The study analyzes recent trends, including regulatory measures, security challenges, and government factors. While cryptocurrency offers the potential for secure and transparent transactions, it also presents significant risks to investors, businesses, and governments. These risks include market volatility, potential fraud and money laundering, lack of legal protections, and susceptibility to cyber-attacks. The paper stresses the need for greater regulatory oversight, investor education, and technological innovation to mitigate these risks and ensure the long-term sustainability of cryptocurrency as a legitimate financial asset. The research was conducted from 2019 to 2021, through Covid-19 pandemic, using Maximum Drawdown (MDD) method to analyze the risks of Bitcoin. Data on Bitcoin were collected from Kaggle sources, the findings showed that cryptocurrency had a very high rate of risks with the Maximum Drawdown approximate 50% loss in 24 hours. The study provides valuable insights for investors interested in cryptocurrency, emphasizing the importance of understanding both the potential returns and risks associated with this type of investment.

Keywords: risks, cryptocurrency, regulatory measures, security challenges, government factors, cyber-attacks, Maximum Drawdown (MDD).

**STUDENTS/TEACHERS' PERCEPTION OF FACTORS AFFECTING B2
ENGLISH RESULTS OF COHORT 19,20 & 21 STUDENTS AT VNUIS
NN.NC.SV.22_01**

Student:

Pham Phuong Anh

IB2020C

20070099

Advisor: Dr. Nguyen Viet Hung

Abstract

International School – Vietnam National University pioneered the establishment of an international academic environment in Vietnam by offering Bachelor's and Master's programs taught entirely in foreign languages. Prospective students aiming for enrolment in an undergraduate English program are required to hold an IELTS 5.5 or B2 (VSTEP, APTIS, or equivalent) certificate. The present study aims to track the progress of students who have achieved B2 proficiency level using VSTEP or other tests. Despite this requirement, the number of students who meet the English entry criteria has not been satisfactory each year. In response, VNUIS has established English training classes focused on improving the four language skills, guaranteeing that students meet the entry-level requirement before beginning their majors. The research objective is to analyze the English language proficiency of 600 students from the 19th, 20th, and 21st cohorts at the International School - Vietnam National University, Hanoi. Through this study, the quality of the faculty's teaching and the trend of students' English proficiency can be partially evaluated.

Keywords: B2 English Certificate; Cohort 19, 20 and 21; English results.

**CULTURAL SCHEMATA AFFECTING VNU-IS STUDENTS' ENGLISH
READING COMPREHENSION ABILITIES**

NN.NC.SV.22_02

Student:

Nguyen Thu Ha

BEL2021B

21070408

Advisor: MA. Duong Thi Thu Huyen

Abstract

This study aims to investigate the effect of cultural background knowledge, also known as cultural schemata on the reading comprehension abilities of EFL students. A quantitative study was conducted at the International School, VNU with the participation of 78 first-year students from the English language program to recognize the impact of cultural schemata on the abilities to interpret a culturally loaded text. A small quiz with the art theme was introduced to measure the participants' existing knowledge about that topic, and a reading comprehension test with the topic related to art was assigned after that. However, before doing the reading comprehension test, students will read a short paragraph relating to the topic of the test. The application of independent T-test models to 78 survey responses divided into two groups of high and low previous knowledge revealed that the varied levels of prior knowledge do not significantly alter the perception and interpretation of foreign language text. Thus, students who got a low score on the quiz but a high score on the while-reading task will be interviewed to explore the way they figured out the keys to the questions of the reading text. From this, we can discover several strategies students employed to complete the reading test successfully.

Keywords: cultural background knowledge, quantitative study, schemata, comprehension test, strategies.

**EXPLORING VNUIS STUDENTS' EMPLOYMENT OF SHORT-TERM
MEMORY IN ENGLISH LEARNING**

NN.NC.SV.22_03

Students:

Do Hong Nhung	BEL2021B	21070338
Nguyen Thi Diem Quynh	BEL2021B	21070415

Advisor: Dr. Nguyen Viet Hung

Abstract

Human memory is a magnificent thing. Memory plays a vital part in life, it is a condition for human development. Memory helps us accumulate life experience capital and use it to make our lives and work better. Thanks to it, our things, events, phenomena, thoughts, and emotions are all stored in our minds and become our practical ability, understanding, and experience. Without memory, all things and phenomena that we have known before will be completely new if we encounter them again, and people will lose the ability to think creatively and plan future activities based on their previous understanding. Now, more than ever in history, scientists are unlocking the secrets to memory enhancement. Memory is extremely important to educators, not only for them personally worrying about poor memory, but more importantly, it is about the role of memory in the teaching/learning process. In the study below, we will learn more about that.

Keywords: Enhance, student's English learning, short-term memory strategies, VNUIS.

A STUDY ON THE USE OF SLANG IN VIETNAMESE AMONG GENZ-VNU-IS STUDENTS

NN.NC.SV.22_05

Students:

Ngo Ngoc Tra My	FDB2022C	22071091
Nguyen Phuoc Hanh	BEL2022B	22071079
Tran Dieu Anh	FDB2022A	22070199

Advisor: Dr. Nguyen Thi To Hoa

Abstract

Languages play the most crucial role in our life, for both we humans and nations. They play a vital part in reunifying a country so mastering how to use them and also having a great knowledge about them are essential. Language development happens annually and there always are extra new words. It's inseparable from the young generations' responsibilities, they take an important role in evolving language as the youth is the nation's precious resource. Today, the young are interested in the languages that they use, those that are not found in dictionaries that are called 'slang'. They prefer slang to general languages. This is the result of the current digital era, in which the young generations spend more time online than in real life. This report is based on theory related to social communication, network languages of students, and cultural contexts to learn more about VNU-IS freshmen's network languages from various aspects: slang, the interspersing second language in interaction, and new structure. From what we can gather from the research, it's inferred that: Students' network language on aspects shows their dynamism, creativity, boldness, and how time works.

Keywords: network languages, students, freshmen, Gen Z, slangs.



**INTERNATIONAL
SCHOOL**
VIETNAM NATIONAL UNIVERSITY, HANOI

CONTACT

OFFICE OF RESEARCH AND PARTNERSHIP DEVELOPMENT

Phone: 0388390627

Mail: dost@vnuis.edu.vn

