2022 IEEE 5th Eurasian Conference on Educational Innovation (ECEI 2022)

Taipei, Taiwan 10-12 February 2022



IEEE Catalog Number: CFP22AP0-POD **ISBN:**

978-1-6654-3319-8

Copyright © 2022 by the Institute of Electrical and Electronics Engineers, Inc. All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

*** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

IEEE Catalog Number:	CFP22AP0-POD
ISBN (Print-On-Demand):	978-1-6654-3319-8
ISBN (Online):	978-1-6654-3318-1

Additional Copies of This Publication Are Available From:

Curran Associates, Inc 57 Morehouse Lane Red Hook, NY 12571 USA Phone: (845) 758-0400 Fax: (845) 758-2633 E-mail: curran@proceedings.com Web: www.proceedings.com



Table of Content

Editorial	II
Table of Content	III

• **Bioengineering**

AI HAM 10000 Database to Assist Residents in Learning Differential Diagnosis of Skir	l
Cancer 1	L
Chung Hsing Chang, Wei En Wang, Feng Yi Hsu, Rou Jhen Chen, Han Chao Chang	

Application of ESP Virtual Patient System in Basic Medical Experiment	4
Jiangyue Liu, Min Cheng, Chengwen Jin, Xinghui Cui, Jianming Liu, Xiaodong Cui	

• Communication, Networking & Broadcasting

 Based on T-test and Pearson Correlation: Effectiveness of Autonomous Learning for

 Vocational College Students of English Listening Course on Network
 N/A

 Danlu Liao

Effects of Developed Teaching Materials on YouTube as Learning Solutions During
Pandemic
N/A

John C.-C. Lu

E-Learning: Inquiry into "O2O Course Characteristic Teaching" in Environmental Design Major under Background of Epidemic 17 Li Yan, You He

Explore Impact of Education 4.0 on Teaching Innovation- Innovative Use Theory
Perspective
N/A
Kuo-Liang Chen, Shieh-Liang Chen

Exploring Extended Reality Extension and Impact of Talent Cultivation in Epidemic Era <i>Chi-Hui Lai, Chun-Chih Chen, Shu-Ming Wu</i>	Post- 25
Learner Characteristics of Created YouTube Channel for Engineering Mathematics John CC. Lu	N/A
Monitoring and Alerting Panic Situations in Students Using Artificial Intelligence Aishwarya Gowda A G, Hui-Kai Su, Wen-Kai Kuo, Heru Dwi Santoso	35
Research and Application of Blended Learning in College Oral English Teaching I on Mobile Platform Dongying Su, Nurhasmiza Binti Abu Hasan Sazalli	Based N/A
Research on Construction of Network Attack and Defense Virtual Simulation Tra Platform Min Tu, Yanwei Xu, Liang Zhang	ining 44
teacher.js: A low-bandwidth Digital Tool for Outdoor Online Teaching Frederic Brodbeck, Daniel Devatman Hromada	47
<u>Components, Circuits, Devices & Systems</u>	
Development and In-situ Teaching of Disasterresistant Monitoring System Slopeland with Micro-weather Stations and Microcontrollers Li-Sheng Kuo, I-Hui Chen, Szu-Hsien Peng	on 51
Multi-sensor-based Lower Limb Rehabilitation Assistant Internet of Things System Yanzhe Zhao, Yashi Zhang, Shukai Tang	55

Optimized Design of AGV Panel	N/A
Yu-Xuan Hsueh, Jui-Hung Cheng, Jia-Hong Shen, Zih-Ling He, Bai-Chau Chen	

Project-based Learning in Competition of Energy- Harvesting Electric Vehicles: Optimal Design 62

Qiang Chen, Hung-Cheng Chen

Safe Driving Assistance Systems Based on Image Recognition and Multi-Sensor Fusion65Kaijie Jiao, Yashi Zhang

• Computing & Processing (Hardware/Software)

Analysis and Research on Status Quo of Home Textile Industry and Its DigitalApplication Based on Background of Big DataN/AShuang Han

Analysis of Application of Color Management in Digital Printing of Home Textiles N/A Shuang Han

Analysis of Piano Teaching in Colleges and Universities from Perspective of Big Data77Yibo Zhang

Analysis of Teaching Influencing Factors and Teaching Reform of Numerical AnalysisCourse Based on BP Neural Network81Qingao Qin, Fei Li, Yi Gu, Zhixing Gu, Liangquan Ge

Analysis of Technological Variation for Animation Production by Remediation throughGenealogical Approach86Dong Yang, Bing Liu, Qi-Mu Chen, Si-Hui Yu86

 Application of Deep Learning Piano Harmony Automatic Arrangement System in Piano

 Teaching
 90

 Yaokun Yang
 90

Application of Fuzzy BP Neural Network to Evaluate Effectiveness of Curricu Teaching Reform of Nuclear Radiation Detection Technology Jianfeng Jiang, Fei Li, Yi Gu, Zhixing Gu, Liangquan Ge	ılum 94
Application of Information Technology in Teaching Business English Course Jun Chen	100
Application of POA in Teaching Mode of College English Writing Based on Artic Intelligence Yajun Luo, Wei Liang	ficial 105
Applications of Machine Learning to Form-giving in Industrial Design Hung-Hsiang Wang	110
Artificial Intelligence and Cognitive Science Case Grammar on Solving Chi Arithmetic Word Problems in Elementary Schools Chen-Gyu Peng, Shih-Yun Lee, Koun-Tem Sun	nese 114
Block-chain Encryption Search Algorithm for Educational System Using Impre Neural Network Jie Zhang, Ningzhou Li, Danyu Zhang, Xiaojuan Wei, Mingshu Chen, Xiaojuan Zhang	oved 118
Chatbot Script Design for Programming Language Learning Yu-Hong Lin	123
CodingHere: Online Judge and Assessment System for Programming Course Jia-Yin Wang, Jia-Chi Liang	126
Computer-assisted Lexical Analysis of ESL Writing Based on Cognitive Model <i>Qin Wang</i>	N/A
Construction and Implementation of College Student Management Evaluation Syn from Perspective of Big Data <i>Yang Li</i>	stem 136

Curriculum Design and Evaluation for Introductory Computer Science Course
Po-Chiang Lin139Data Processing Model of Students' Evaluation of Teaching Based on Outlier Detection
Ying Qu, Fei Guo143Design of Drone Remote-Control System using Human Motion Recognition
Shyh-Wei Chen, Yu-Chun Lai, Chia-Hui Liu, Chin-Guo Kuo148Enhancing Student Learning Using an Integrated Pedagogy through Topical
ObjectivesSeide
N/ATingjun Lei, Timothy Sellers, Chaomin Luo, Gene Eu JanN/A

Evaluation Model of IAP Education(IPM) in Colleges and Universities (CAU) Based onBP Neural Network and Grey Correlation Theory157Jing Dai

Evaluation of Sino-foreign Cooperative Education Model by Big Data and Deep Learning 161 Xiangwang Zheng

 Exploration and Practice of Hybrid Medical Course Teaching Mode Based on Deep

 Learning
 166

 Xinghui Cui, Yulei Ma, Shouhua Wang, Jianming Liu, Min Cheng, Xiaodong Cui

Exploration of Virtual Simulation Teaching Mode of Landscape Design with OBEConcept as Core in Post-pandemic Era170Zhe Zou, Shu-Chen Tsai170

 Feasibility Study of Applying Character-Based Recurrent Neural Networks in Training

 Marketing Personnel
 177

 Jen-Ying Shih, Tung-I Cheng
 177

Framework for Blockchain Technology Adoption in Supply Chain for Small and 181 Medium Indonesian Urban Farming: A Case Study Riana Magdalena Silitonga, Hui-Ming Wee, Yung-Tsan Jou Lesson Planning of Smart Classroom Based on Genetic Algorithm 185 Yanhua Wang, Lin Chen, Xuanlin Chen Linguistic Extension of UTAU Singing Voice Synthesis and Its Application from Japanese to Mandarin 189 Hung-Che Shen Mathematical Rhythm Complexity and Human Perception of Rhythm Complexity N/A Huei-Min Lee, Wen-Ta Juang, Po-Chen Hsu Modify, Decompose and Reassemble: Learner-Centered Constructive Teaching Strategy for Introductory Programming Course in College 197 Shih-Wen Su, Shing-Yun Jung, Xiaojing Yu, Shyan-Ming Yuan, Chuen-Tsai Sun Online Handwriting Based Adult and Child Classification using Machine Learning Techniques 201 Jungpil SHIN, Md. Al Mehedi Hasan, Md. Maniruzzaman, Akiko Megumi, Akiko Suzuki, Akira Yasumura

Pilot Study of Using ARCS Model to Investigate Motivational Affordances ofEduVenture VR from Perspective of Construction Management Students205Morris Siu-Yung Jong, Michael Yi-Chao Jiang, Peter S. P. Wong

 Pilot Study on Concerns of Teachers of Using Artificial Intelligence in Learning and

 Teaching
 209

 Morris Siu-Yung Jong

Prediction Method of Spiritual and Cultural Needs of the Aged Based on BP Neural Network 212

Yue Geng, Wei Wei, Chenlu Jia

Prediction of College Students' Autonomous Learning Ability Based on Markov C Prediction Algorithm <i>Sujuan Han</i>	hain 216
PROTUR Hotel Process Simulator– an Educational Application Petra Poulova, Tomas Kozel, Jan Han, Pavel Kriz, Filip Malý, Jirina Jenckova, Martin Kocourek, Zdenek Ulrych	221
Recognition Technology with Machine Learning into Swallow Ecological Education <i>Wen-Chuan Wu, Tsai-Chu Wang, Chao-Yuan Wang, Yu-Han Yu</i>	n 225
Recommendation System Providing Similar Problems Instead of Model Answe Programming Assignments Ryoya Yoshimura, Kazunori Sakamoto, Hironori Washizaki, Yoshiaki Fukazawa	rs to 229
Research and Practice on Teaching Reform of Digital Topographic Survey un Background of Engineering Education Certification Yingchun You, Yan Wang, Maohua Liu	nder N/A
Research on 3D Blended Teaching Based on Rain Classroom Jinwei Liu	237
Research on Children's Attention Score Modeling Based on Facial Micro Expression	
Feature Lin Yu, Fei Luo	241
Research on Cultural Ant Colony Algorithm in Robots Path Planning Yu Zhang	245
Research on Legal Education Information Technology Based on Artificial Intelligence Fangqin Ma	N/A
Research on Practical Value and Teaching Strategies of Computer-Aided Translation	
Teaching Based on POA Concept Linyang Yuan	252

5th IEEE Eurasian Conference on Educational Innovation 2022

Research on SPOC-based Effective Teaching from Prospective of Artificial Intelligence N/A *Guanbo Liang*

 Study on Labor Consciousness Training Model of English Majors Based on Deep

 Learning
 262

 Na Chu, Wanzhi Ma

Systematic Review of App-based Blended Learning Model Design to Enhance Teaching
Presence
N/A
Xiaoyu Wang

Taiwan Preservice Educare Students' Computational Thinking of Online BlocksAssembling Activities via Lego Digital DesignerN/AYuan-Yen Huang, Pei-Tsen Huang, Sheng-Yao Tai

Technology Assisted Device for Bilingual Learning Environment in Higher Education in Taiwan 274

Po-Hsiang Tsai, Bo-Yu Chen, Shiang-Yi Chou, Li-Ching Chang

TikTok Time: An Initial Investigation into Bite-Sized Learning of Statistics Using Microsoft Excel N/A

Aimee Jacobs, Yu-Chun Pan, Yen-Chen Ho

Transformation of Online Education Platform under China's Double Reduction Policy andIndividual Homework Management Design Based on Analytic Hierarchy ProcessN/AYuxin Zhang, Guo Chen, Jiehui Fang

Using Decision Tree to Figure out Relationship between Physiological Signals andPersonality Traits for Students Learning Programming286

Chun-Hsiung Tseng, Hao-Chiang Koong Lin, Jia-Rou Lin, Andrew Chih-Wei Huang

• Engineered Materials, Dielectrics & Plasmas

Optimal Process Parameters of Electron Beam Evaporated ZrN Thin Films Based on Taguchi Method N/A

Chuen-Lin Tien, Chun-Yu Chiang, Hong-Yi Lin

• General Topics for Engineers (Math, Science & Engineering)

Action Research to Utilize Science Toys in Teaching Physics at Junior High School N/A Lam-Huu-Phuoc Nguyen, Chin-Fei Huang

Application of Ant Colony Projection Pursuit in Comprehensive Ability EvaluationIndex System of Nuclear Postgraduates in Colleges and UniversitiesN/AXiaofei Huang, Fei Li, Yi Gu, Zhixing Gu, Liangquan Ge

Application of Artificial Intelligence Technology in College Students' Foreign Language Learning 302

Min Deng

Case Exploration of Access Database Application Course Based on Bloom's Taxonomy 305

Lina Wang

Case Study to Promote Computational Thinking Skills of Applied University
Information Management Students N/A
Li-Xian Chen, Shih-Wen Su, Chia-Hung Liao, Mei-Jin Hsiao, Shyan-Ming Yuan

Construction of Teachers Competence Quantitative Model in Higher Vocational Education Institutions N/A Xiao Yang, Yue Zhao

Control Research on Realization Path of Innovation and Entrepreneurship Ability of Students in Application-oriented Colleges and Universities N/A

Xiaoyan Huang, Jifu Lu

Cultivating Computational Thinking Literacy Through Online and Offline Game-be Activities Li-Xian Chen, Shih-Wen Su, Yen-Yun Chen, Chia-Hung Liao, Shyan-Ming Yuan	ased N/A
Curriculum Reform Based on Random Forest Algorithm Prediction Radiochemistry Yuelu Chen, Liangquan Ge, Fei Li, Yi Gu, Zhixing Gu	v N/A
Effectiveness for OBE-Oriented College Students' Blended English Lean Community in Smart Environment Jinyuan Zhang, Qianmei Li, He Huang, Jiading Cui, Heguo He, Shiqing Li	rning N/A
Investigaion of Mathematics Ability in Private University of Technology in Tai	wan -
Case of Mechanical Engineering Department Jui-Yang Hsiao, Yi-Chu Hsu	N/A
Investigation and Analysis of EdTech Industry in Taiwan Yen-Yin Wang, Fang-Chen Chuang, Eden Chung	N/A
Project-Based Learning for Innovation and Entrepreneurship Training: Empirical Study <i>Feng Wang, Tiantian Zheng, Yangyang Wei, Shuting Zhao, Desong Liu, Zhicheng Zhao</i>	342
Quantitative Study on Students Participation in English Class at Junior High School Yan Jiang	N/A
Research Ability of Academic Postgraduates Based on the Method of Optimum In	dex of
Target Analysis Evaluation Research	N/A

Rongli Guo, Haoyan Wang

Research on Construction of Competency Model of Primary School Teachers in Yunnan
Province *N/A Guang Li*

Research on Influence of Online Instructional Design of College Students on Teaching	
Effect Based on Multiple Regression Analysis	N/A
Xiuqin Wang, Xiao Cheng, Shan Chen, Rui Min, Lina Shuai	
Video-case Based Lesson Study in Pre-service Teacher Education	N/A

Jixin Liu, Nurhasmiza Abu Hasan Sazalli

Photonics & Electro-Optics

Measurement of Surface Shape and Residual Stress of Thin Film Deposited on Large-Size Wafers By Using Fringe Reflectometry and Wavelet Transform 372 Chuen-Lin Tien, Chih-Kai Chang, Hong-Yi Lin

Molecular Investigations of Thermo-mechanical Characteristics of Nanoscale Iron Powders in Laser Powder Bed Fusion Additive Manufacturing Process: A Molecular **Dynamic Simulation Study** N/A Ling-Feng Lai, Deng-Maw Lu, Jian-Ming Lu

Teaching by Heuristic Subjects and Team Competition to Enhance Solar Technique Learning N/A

Yu-Cherng Hung, Jye-Chau Su, Wei-Jen Lin

• Power, Energy, & Industry Applications

Research on Energy-Saving Efficiency of the Air-Conditioning Host in Agricultural Plant Bacteria Room 384 I-Huai Lu

<u>Robotics & Control Systems</u>

Application of TRIZ Theory in Design of Jig of Robot Arm Assembly Platform 388 Hung-Jen Chen, Chia-Hui Liu, Lin-Chuan Tsai

Case Study on the Safety and Disaster Prevention System of Factory Intelligent	
Warehouse	391
Yu-Sheng Lin, Chang-Wei Chai, Tseng-Wei Chao	
SANPO Robot: Make Your Own Biped Humanoid Robot with Low Entry Barrier	396
Po-Chiang Lin	
Vision-Based Surface Defect Detection for Flange Nuts	400
Ning Su, Hung-Shiang Chuang, Ying-Chun Chuang	
<u>Signal Processing & Analysis</u>	
Natural Chinese Speech Synthesis for College Course Teaching	N/A
Yanhua Wang, Xuanlin Chen, Lin Chen	
Natural Human Emotion Recognition Based on Various Mixed Reality(MR) Games and	
Electroencephalography (EEG) Signals	408
Abu Saleh Musa Miah, Jungpil SHIN, Md. Minhajul Islam, Abdullah, Md. Khademul Islam Molla	
Study on Effcet of Computer Assisted Instruction Via Analysis of Heart Rate Variation	
	412

Han-Guo Hong, Wen-Lin Huang, Shih-Hsiung Twu

Author Index

416