Mark Verana

B.S. Computer Software Engineering
M.S. IT Convergence Engineering

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Daegu, South Korea

A dedicated and passionate researcher with experience in the development and innovation of systems, devices, technologies, and methods. Skilled in writing reports, journal papers, and making presentations. Fast learner, focused, and good in multitasking.

Work Experience

Laboratory Research Assistant
Kumoh National Institute of Technology
Networked Systems Laboratory (nsl.kumoh.ac.kr)
March 2021 – February 2023
- Edge computing using Raspberry Pi and Jetson NVIDIA devices
- Application of machine learning for fault diagnosis and anomaly detection and prediction
- Assistant web developer
- Participate in paper publication (conferences and journal)

Freelance Web Developer
January 2019 – Present
- Frontend Developer
- Web Designer

Software Engineer
Erae AMS Co., Ltd., Daegu, South Korea
March 2023 – Present
- Software Engineer Support
- Hardware Engineer Support
- Project Manager

Educational Background

Master's degree in IT Convergence Engineering
Kumoh National Institute of Technology, South Korea
Thesis title: An Improved Anomaly Detection in 3D Printing using Edge Artificial Intelligence
September 2020 – February 2023

Bachelor's degree in Computer Software Engineering
Kumoh National Institute of Technology, South Korea
Thesis title: Edge Programming for Secondary Education
September 2014 – February 2019

Skills

- Python programming language
- Machine learning using python
- Django
- HTML
- CSS
- JavaScript
- React
- Technical writing

Projects

3D Printing Fault Diagnosis using Attitude Sensors
Software developer
Conception Co., Ltd., Gumi, South Korea
March 2021 – December 2021

3D Printing Anomaly Detection and Prediction using Edge AI (Computer Vision)
Software developer
Conception Co., Ltd. , Gumi, South Korea
January 2022 – January 2023

Battery Pack
Software Engineer
Erae AMS Co., Ltd., Daegu, South Korea
April 2023 – Present

In-Vehicle Infotainment (IVI) System
Software Engineer
Erae AMS Co., Ltd., Daegu, South Korea
May 2023 – December 2023

Websites

Portfolio
https://www.amvcoder.com/

SeonTech
https://mprof27.github.io/SeonTech/

Nethan Mart
http://nethanmart.stechdev.com/

E-Commerce
https://mprof27.github.io/Lappo/

Achievements

Best Paper Award
Paper title: *Machine Learning-based 3D Printer Fault Detection on Edge Device*
Korean Institute of Communications and Information Sciences Conferences
November 19, 2021, in Yeosu, South Korea

Domestic Journal Publications

[1] Made Adi Paramartha Putra, Ahakonye Love Allen**,** **Mark Verana**, Dong Seong Kim, Jae Min Lee, "*Efficient 3D Printer Fault Classification using Multi-Block 2D-Convolutional Neural Network,*" (다중 블록 2D-컨볼루션 신경망을 이용한 효율적인 3D 프린터 출력 결함 분류 기법), Journal of KICS, November 2021.

International Conferences

[1] **Mark Verana**, Cosmas Ifeanyi Nwakanma, Jae-Min Lee, and Dong-Seong Kim, "*Deep Learning-Based 3D Printer Fault Detection,*"12th International Conference on Ubiquitous and Future Networks (ICUFN 2021), August 17-20, 2021, Jeju Island, Korea, pp.99-102. doi:10.1109/ICUFN49451.2021.9528692

[2] Made Adi Paramartha Putra, **Mark Verana**, Gabriel Avelino R. Sampedro, Dong-Seong Kim, and Jae Min Lee, "*3DFed: A Secure Federated Learning-based System for Fault Detection in 3D Printer Industry,*" in 13th International Conference on ICT Convergence (ICTC 2022), Jeju Island, Korea, 19-21 October 2022.

Domestic Conferences

[1] **Mark Verana,** Cosmas Ifeanyi Nwakanma, Jae-Min Lee, and Dong-Seong Kim, "*An Inference Time Efficient 3D Printer Fault Detection using CNN,*" 2021 Korean Institute of Communication and Sciences (KICS 2021) Summer Conference - Venue Ramada Plaza, Jeju Island, Korea, Vol 75, June 2021, pp 1360-1361.

[2] **Mark Verana**, Made Adi Paramartha Putra, Revin Naufal Alief, Jae-Min Lee, Dong-Seong Kim, "*Machine Learning-based 3D Printer Fault Detection on Edge Device,"* 2021 Korean Institute of Communication and Sciences (KICS 2021) Fall Conference, Yeosu, Korea, 17-19 November 2021, pp 457-458.

[3] Made Adi Paramartha Putra, **Mark Verana**, Revin Naufal Alief, Dong-Seong Kim, and Jae-Min Lee, "*Fault Detection in 3D Printer Faults using an Improved YOLOv5 with Hyperparameter Tuning,*" 2021 Korean Institute of Communication and Sciences (KICS 2021) Fall Conference, Yeosu, Korea, 17-19 November 2021, pp 489-490.

[4] Revin Naufal Alief, Muhammad Rasyid Redha, **Mark Verana**, Made Adi Paramartha Putra, Jae-Min Lee, and Dong-Seong Kim, "*Performance Evaluation of 3D Printer Fault Detection Based on Machine Learning Approach,*" 2021 Korean Institute of Communication and Sciences (KICS 2021) Fall Conference, Yeosu, Korea, 17-19 November 2021, pp 493-494.

[5] **Mark Verana**, Made Adi Paramartha Putra, Love Allen Ahakonye, Dong-Seong Kim, and Jae-Min Lee, "*Intelligent Fault Classification of 3D Printers Using Long Short-Term Memory,*" 2022 Korean Institute of Communication and Sciences (KICS 2022) Winter Conference, Gangwon Province, Korea, 9 - 11 February 2022.

[6] Made Adi Paramartha Putra, Adinda Riztia Putri, **Mark Verana**, Dong Seong Kim, and Jae Min Lee, "*Towards Delay Aware Data Recovery using Deep Learning in Embedded IoT Application,*" 2022 Korean Institute of Communication and Sciences (KICS 2022) Winter Conference, Gangwon Province, Korea, 9 - 11 February 2022.

[7] Love Allen Ahakonye, Cosmas Ifeanyi Nwakanma, Made Adi Paramartha Putra, **Mark Verana**, Shakzodbek Khurboev, Jae Min Lee, and Dong Seong Kim, "*Deep Learning Anomaly Detection in Additive Manufacturing Process of a Smart Factory*," 2022 Korean Institute of Communication and Sciences (KICS 2022) Winter Conference, Gangwon Province, Korea, 9 - 11 February 2022.

[8] **Mark Verana**, Made Adi Paramartha Putra, Gabriel Avelino R. Sampedro, Syifa Maliah Rachmawati, Dong-Seong Kim, and Jae-Min Lee, "*Edge Device Anomaly Detection of 3D Printers using Bidirectional LSTM,*" 2022 Korean Institute of Communication and Sciences (KICS 2022) Summer Conference - Venue Grand Hyatt Hotel, Jeju Island, Korea, 22 - 24 June 2022.

[9] Syifa Maliah Rachmawati, **Mark Verana**, Made Adi Paramartha Putra, Gabriel Avelino R. Sampedro, Taesoo Jun, Dong-Seong Kim, and Jae-Min Lee, "*Layerwise Structural Analysis Using Canny Edge Algorithm for Additive Manufacturing,*" 2022 Korean Institute of Communication and Sciences (KICS 2022) Summer Conference - Venue Grand Hyatt Hotel, Jeju Island, Korea, 22 - 24 June 2022.

[10] Gabriel Avelino R. Sampedro, Syifa Maliah Rachmawati, **Mark Verana**, Dong-Seong Kim, and Jae-Min Lee, "*Design and Implementation of a Printing Path Simulator for Additive Manufacturing,*“ 2022 Korean Institute of Communication and Sciences (KICS 2022) Summer Conference - Venue Grand Hyatt Hotel, Jeju Island, Korea, 22 - 24 June 2022.

[11] **Mark Verana**, Made Adi Paramartha Putra, Syifa Maliah Rachmawati, Dong-Seong Kim, and Jae-Min Lee, "*3D Printing Anomaly Detection using Deep Learning,*" 2022 Korean Institute of Communication and Sciences (KICS 2022) Fall Conference - Venue Lahan Select Hotel, Gyeongju, Korea, 16 - 18 November 2022.