

Riestiya Zain Fadillah

✉ riestiyazainf@gmail.com ☎ +47 925 38 298 📍 Gjøvik, Norway 🌐 riestiyazain

🌐 Riestiya Zain Fadillah 🇮🇩 Indonesian

EDUCATION

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|---|---|
| PhD candidate in Department of Computer Science
<i>NTNU</i>
Working on deep learning-based video enhancement for pre-hospital medical service | Sep 2024 – present
Gjøvik, Norway |
| Bachelor of Computer Science
<i>Universitas Pertamina</i> <ul style="list-style-type: none">Electives taken: Advanced Database Management System, Advanced Computer Networks, Computer Vision and Machine Learning. GPA: 3.89/4.00 | Aug 2016 – Feb 2020
Jakarta, Indonesia |
| Erasmus+ Joint Master's Degree in Computational Colour and Spectral Imaging (COSI)
<i>NTNU, Universidad de Granada</i> <ul style="list-style-type: none">Electives taken: Advanced Color and Image Processing, Spectral Imaging, Data Science, Computer Vision, Advanced Optoelectronics, Deep learning for Visual Computing. | Aug 2022 – Aug 2024
Norway, Spain |

PROFESSIONAL EXPERIENCE

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| Machine Learning Researcher - Optical Engineering Department
<i>COGNEX</i>
Expanding optical depth of field (DOF) via deep learning techniques in combination with multi-color light. (NDA) | Jan 2024 – Aug 2024
Aachen, Germany |
| Teaching Assistant
<i>Computer Science Department (IDI), NTNU</i> <ul style="list-style-type: none">IDIG4321 - Introduction to Color Image ProcessingIDIG4002 - Computer Graphics Fundamentals and Applications | Sep 2023 – Dec 2023
Gjøvik, Norway |
| Research Assistant
<i>Computer Science Department (IDI), NTNU</i> <ul style="list-style-type: none">Contribute to the hyperspectral image acquisition of ink on parchment in University of Oslo (UiO) using SpecimIQ. Article link 📄Developed python script for supervised segmentation of manuscript fragment images from Dead Sea Materials. | Sep 2022 – Feb 2023
Gjøvik, Norway |
| Machine Learning Engineer
<i>Gringgo</i> <ul style="list-style-type: none">Implemented transfer learning to achieve higher mAP@0.5IOU for object detection model to identify recyclables using Tensorflow Object Detection API.Optimized and converted the model for mobile device inference using Tensorflow Lite Converter. | Mar 2020 – Dec 2022
Denpasar, Indonesia |
| Junior iOS developer
<i>Apple Developer Academy Indonesia</i> <ul style="list-style-type: none">Project manager for a team of 7, responsible for managing the app developments and ensuring the app deliverables to solve the given challenge. | Feb 2021 – Dec 2021
Jakarta, Indonesia |

PROJECTS

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| Bilipic (bilirubin estimation from smartphone image)
<i>stacks used: C#, SkiaSharp, Matlab</i>
<i>Collaboration project with NTNU and Bilimetrix USA</i> <ul style="list-style-type: none">Improve the system accuracy by reducing 11% residual error by adding novel flat field and white balance corrections to the image processing pipeline. | Sep 2023 – Dec 2023 |
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Thread density as texture descriptor for archaeological tapestry

Sep 2023 – Dec 2023

stacks used: Matlab, Python

Collaboration project with NTNU and archaeologists from the University of Oslo (UiO)

- Achieved 94% accuracy for thread density (thread/cm) estimation
- 15/27 degraded fragments correctly clustered using obtained thread density information for the clustering algorithm.

One shot anomaly detection

Sep 2023 – Dec 2023

stack used: Pytorch

- Improve the one-shot generative adversarial-based network (GAN) for industrial defect detection (Shenin et al.) by 14%
- Utilizing the existing multiscale transformation discrimination GAN architecture to build Gaussian scale space to improve few-shot learning

Spectral Imaging for Reference Material Database: Color Charts and Pigments

Jun 2023 – Jul 2023

- Enhanced the spatial resolution and denoise stripe noise of hyperspectral image obtained from SpecimIQ using conventional and deep learning approach.
- Develop python script to automate the extraction of the color chips from Munsell Soil Color Chart from hyperspectral image.
- Published hyperspectral dataset [🔗](#)

Soil Color Identification and Classification based on Munsell Soil Color Chart using RAW image from DSLR Camera

Sep 2022 – Dec 2022

accepted in NOBIM (Norsk Forening for Bildebehandling og Maskinl ring) 2023

- Created reflectance database for Munsell Soil Color Chart using spectroradiometer.
- Characterize DSLR camera using colorimetric approach
- Created MATLAB script to match the soil sample color from RAW image with Munsell Soil Color Chart with average 5.8 CIELAB ΔE referring to ground truth color from reflectance database.

SWAi (Solve Waste with AI) App / Google AI Impact Challenge Grant

Mar 2020 – Dec 2022

stacks used: Python, Tensorflow, Tensorflow Lite, CoreML, Google Cloud Platform.

- Created object detection model to identify recyclables categories from image.
- Developed new dataset pipeline from crowdsorce feature in mobile app and using transfer learning to train the object detection model.
- Improved the model score 0.68 from 0.48 in mAP@0.5IOU from company's prior model. Google Play Store Link [🔗](#)

Volume Fraction Counting and Area Estimation in Microstructure Images

Jul 2021

stacks used: Python, OpenCV

- Created python script to estimate the number and the area of volume fraction from Non-Destructive Test (NDT) microstructure images using OpenCV.

Indonesian Sign Language (BISINDO) Translator Model using Convolutional Neural Network (CNN)

Nov 2019 – Feb 2020

stacks used: Python, Keras

- Created the first Indonesian Sign Language (BISINDO) Alphabet Dataset
- Developed the CNN based model and compare the model performance between trained model with and without transfer learning from American Sign Language (ASL) model. Kaggle link [🔗](#)

SKILLS

Data Science and Machine Learning

Python, Pandas, Numpy, MATLAB, TensorFlow, Keras, Pytorch

Cloud technology

Google Cloud Platform

Computer Vision

OpenCV

LANGUAGES

English

TOEFL iBT 93



PUBLICATIONS

- Transfer Learning Approach for Indonesian Sign Language (BISINDO) Translator Model (written in Bahasa Indonesia)** [↗](#) 2021
PETIR
Susanty, M., R. Z. Fadillah, and A. Irawan. "Model Penerjemah Bahasa Isyarat Indonesia (BISINDO) Menggunakan Pendekatan Transfer Learning. *Petir*, 15 (1), 1–9." (2021).
- Solar Panel and Wind Turbine for Renewable Energy: A Comparative Study in Pertamina University (written in Bahasa Indonesia)** [↗](#) 2021
Jurnal Teknologi Lingkungan
Fadillah, Riestiya Zain, et al. "Perbandingan Penggunaan Panel Surya dan Turbin Angin dalam Implementasi Energi Baru Terbarukan (EBT) di Lingkungan Universitas Pertamina." *Jurnal Teknologi Lingkungan* 22.1 (2021): 029-037.
- Data Augmentation to Address Data Limitations for Indonesian Sign Language (BISINDO) Translator Model (written in Bahasa Indonesia)** [↗](#) 2021
Jurnal Informatika
Fadillah, Riestiya Zain, et al. "Data Augmentasi Untuk Mengatasi Keterbatasan Data Pada Model Penerjemah Bahasa Isyarat Indonesia (BISINDO)." *Jurnal Informatika* 8.2 (2021): 208-214.
- Re-designing the Pacman game using Pushdown Automata (Best paper in Information Technology)** [↗](#) 2018
4th Asia Pacific Conference on Contemporary Research (APCCR-2018)
Yunita, A., et al. "RE-DESIGNING THE PACMAN GAME USING PUSH DOWN AUTOMATA." *Asia Pacific Institute of Advanced Research* (2018):50-56

REFERENCES

- Jon Yngve Hardeberg**, *Professor*,
Department of Computer Science Faculty of Information Technology and Electrical Engineering
jon.hardeberg@ntnu.no
- Hilda Deborah**, *Senior Researcher*,
Department of Computer Science Faculty of Information Technology and Electrical Engineering
hilda.deborah@ntnu.no
- Davit Gigilashvili**, *Postdoctoral Fellow*,
Department of Computer Science Faculty of Information Technology and Electrical Engineering
davit.gigilashvili@ntnu.no