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# CRA TIVE POR TFOLIO

By : Muhammad Fauzan Ariyatmoko



START TO KNOW ME

# Introduce Myself

I'm a Fresh Graduate in Science Physics Bachelor, focused learning in Electronics Instrumentation Physics at Sepuluh Nopember Institute Of Technology (ITS), Surabaya. I am a person who is adaptive in learning various sciences. Having an interest and talent in Information Technology, especially for Data, therefore I explore the field of machine learning. Having experience in the field of machine learning for approximately 2 years, participating in Dicoding Event activities such as the Student Independent Bangkit Academy program, IDCamp Bootcamp to become a Mentor at the Coding Camp at DBS Foundation.

As for me, I actively participated in several Google events such as Generative AI in Action Roadshow Surabaya 2025 to being selected as one of the participants in the Baparekraf Developer Day (BDD) Event in 2024 which was supported by the Ministry of Tourism. As for my experience during my studies as a physics student, I was active in teaching such as being a Physics Laboratory Assistant, Creating Learning Modules, to serving as the ITS Physics Laboratory Coordinator in the 2022 - 2024 period. I am very happy to communicate in terms of giving knowledge to people and can be useful and have a real impact.

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# Educational Background

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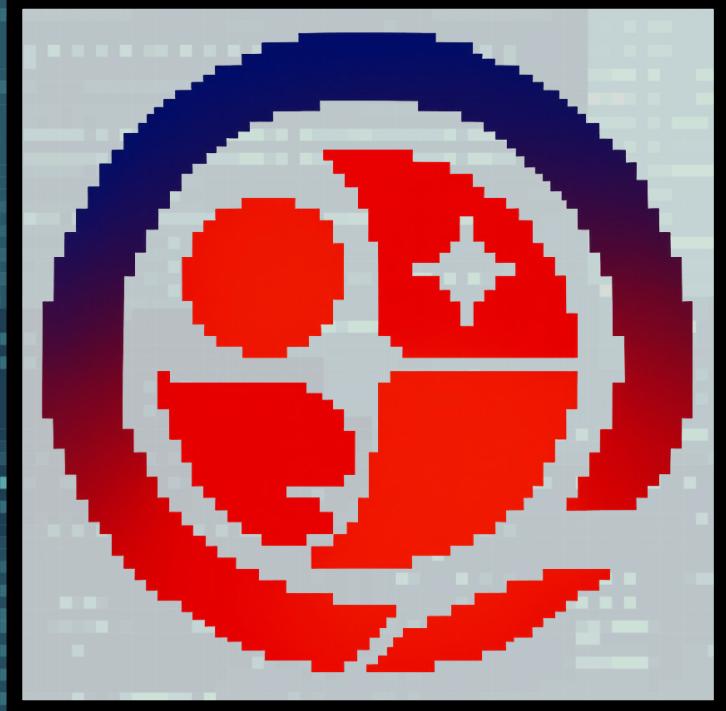
As a Physics undergraduate student at the Sepuluh Nopember Institute of Technology (ITS), I have cultivated an impressive track record in both academic and organizational activities. Through my active involvement as a Physics Laboratory Assistant and later as the Coordinator for the ITS Fundamental Physics Laboratory for two consecutive terms (2022-2024), I have demonstrated a strong passion for education and knowledge dissemination. My abilities in communication and developing learning modules are a testament to my dedication to making a tangible impact on my community.

Beyond my teaching-related roles, I am also engaged in cutting-edge research in the field of Quantum Computing in collaboration with the National Research and Innovation Agency (BRIN). Furthermore, I hold a leadership position as the Head of the Research and Development (R&D) division within a laboratory organization. I am also proactively pursuing professional development outside the traditional academic setting by participating in the MBKM program at Bangkit Academy, a Google and GoTo initiative, focusing on the Machine Learning path. This diverse engagement showcases my broad interest and growing competence across the fields of technology and science.

INSTITUT TEKNOLOGI  
SEPULUH NOPEMBER



# My Experience



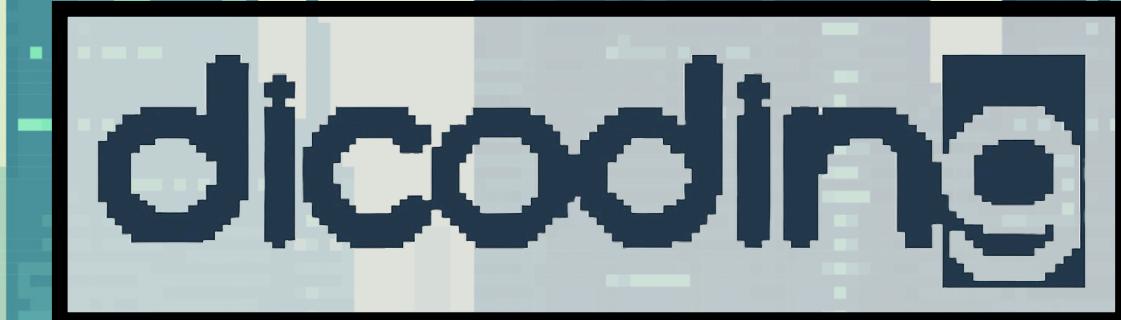
[Click Here!](#)

Conducted an applied research project at BRIN investigating the electronic properties of thermoelectric materials using Quantum Espresso to identify optimal candidates.



[Click Here!](#)

I completed the Bangkit Academy program, a collaboration with Google, where I specialized in the machine learning path. My capstone project focused on creating a Computer Vision solution for assessing facial health. I successfully graduated from the program with excellent results.



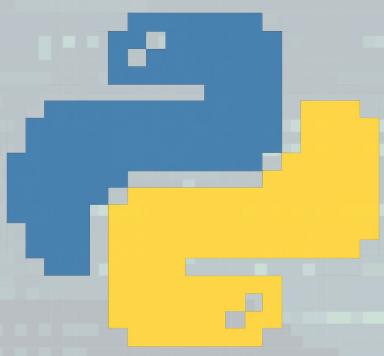
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I was selected as a Machine Learning Engineer Mentor for the DBS Foundation Coding Camp, an event organized by Dicoding and DBS Bank. My motivation for joining was to disseminate my knowledge and make a tangible impact by helping to cultivate new digital talent in Indonesia.

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# Skills & Achievement

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Python



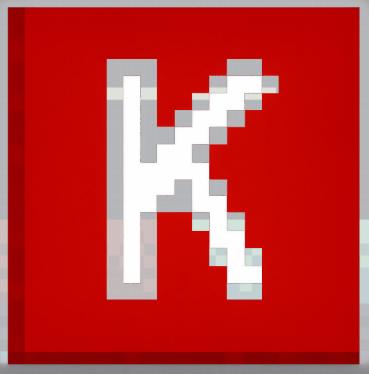
C++



TensorFlow



Quantum Espresso



Keras



HuggingFace

## 1st Indonesia AWS DeepRacer August Student Qualifier 2024

### Race overview

#### Race type

Time trial

#### Description

Neque porro quisquam est qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit...

#### Race dates

Start August 1 at 7:00 AM

End September 1 at 6:59 AM

#### Time zone

UTC+0700 (Western Indonesia Time) Asia/Jakarta

#### Competition track

Go where no racer has gone before on the Expedition Loop track! This is a short track at 44.04m featuring two dragstrips and an unforgiving hairpin turn. Expect to see no shortage of off tracks on this challenging course.  
Direction: Counterclockwise



#### Rules

##### Ranking method

Average lap time

##### Style

Individual lap

##### Entry criteria

3 consecutive laps

##### Resets

Unlimited resets

##### Off-track penalty

5 seconds

##### Submission quota

50



### Racing times and ranking

#### Indonesia

Qualifying time  
00:48.952  
FauzanAriyatmoko

My race ranking  
1/42

Gap to 1st  
--

#### FauzanAriyatmoko

Your qualifying time  
**00:48.952**

Qualifying model submitted  
INTEL02RACERV03

Remaining submissions  
44

#### Asia Pacific

Qualifying time  
00:38.931  
Akash-

My race ranking  
93/1326

Gap to 1st  
+00:10.021

#### World

Qualifying time  
00:38.821  
HPC

My race ranking  
266/3039

Gap to 1st  
+00:10.131

# Applied Research Project on BRIN

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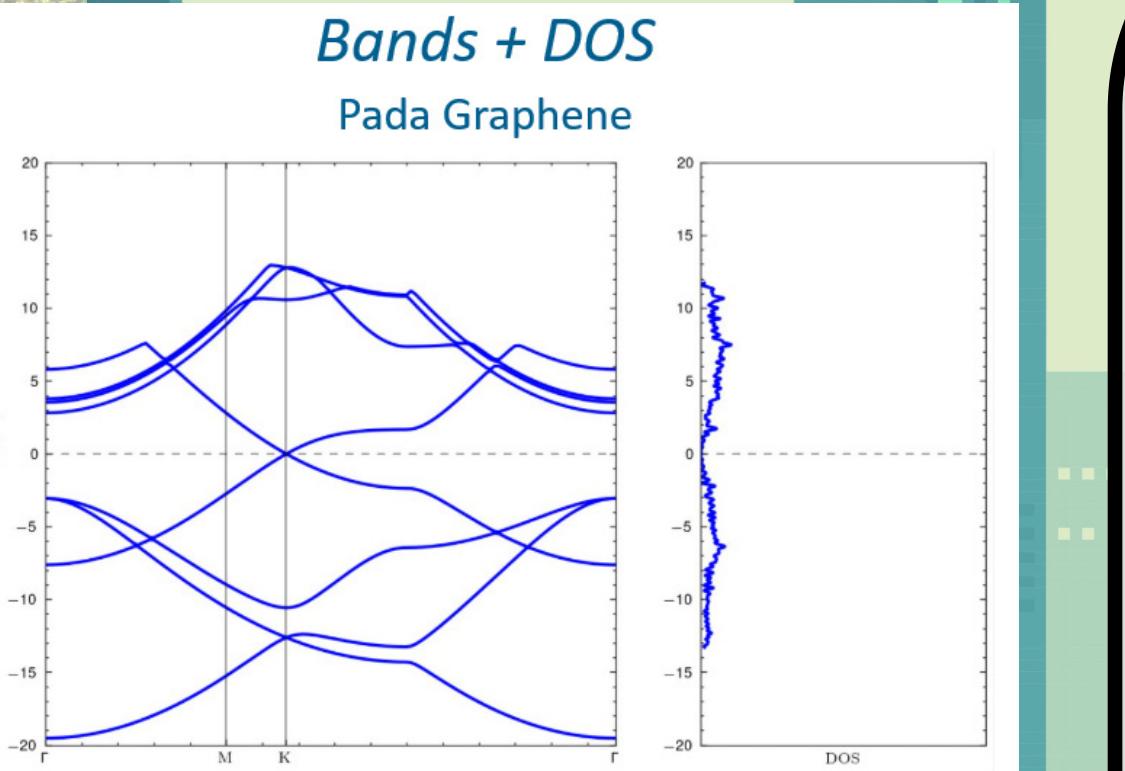
Studi Komputasi Material Lapisan Tunggal SiN dan SiAs sebagai Prospek Material Termoelektrik

SiAs

SiN

Institut Teknologi Sepuluh Nopember

www.its.ac.id



Mencari Kedalaman Posisi Atom

0.5 crystal -  $\frac{d\text{Si}-\text{As}}{20\text{\AA}}$

0.5 crystal

0.5 crystal -  $\frac{d\text{Si}-\text{Si}}{20\text{\AA}}$

0.5 crystal -  $\frac{d\text{Si}-\text{Si} - d\text{Si}-\text{As}}{20\text{\AA}}$

Table 1 Structural properties of 2D SiX binary compounds evaluated using the GGA level of theory

System $a$ ( $\text{\AA}$ )	$d_{\text{NNV}}$ ( $\text{\AA}$ )	$d_{\text{VV}}$ ( $\text{\AA}$ )	$d_{\text{NV}}$ ( $\text{\AA}$ )	$\theta_1$ (deg)	$\theta_2$ (deg)	$E_g^{\text{PBE}}$ (eV)	$E_c$ (eV per atom)	
SiN	2.89, 2.90 <sup>a</sup> , 2.907 <sup>b</sup>	2.43, 2.43 <sup>a</sup> , 2.439 <sup>b</sup>	3.54, 3.54 <sup>a</sup> , 3.549 <sup>b</sup>	1.76, 1.76 <sup>a</sup> , 1.758 <sup>b</sup>	108.36, 108.40 <sup>a</sup>	110.56, 110.52 <sup>a</sup> , 100.0 <sup>b</sup>	1.73 ( $\Gamma$ -M), 1.74	5.52, 5.59 <sup>a</sup>
SiP	3.53, 3.53 <sup>a</sup> , 3.550 <sup>b</sup>	2.38, 2.37 <sup>a</sup> , 2.375 <sup>b</sup>	4.40, 4.41 <sup>a</sup>	2.28, 2.28 <sup>a</sup> , 2.268 <sup>b</sup>	116.36, 116.50 <sup>a</sup> , 101.79, 101.62 <sup>b</sup>	1.49 ( $\Gamma$ -M), 1.49 ( $\Gamma$ -M), 1.54	4.12, 4.19 <sup>a</sup>	
SiSb	3.69, 3.70 <sup>a</sup> , 3.682 <sup>b</sup>	2.37, 2.36 <sup>a</sup> , 2.377 <sup>b</sup>	4.57 <sup>a</sup>	4.56, 4.57 <sup>a</sup> , 2.39, 2.40 <sup>b</sup>	117.23, 117.38 <sup>a</sup> , 100.71, 100.54 <sup>b</sup>	1.64 ( $\Gamma$ -M), 1.63 <sup>a</sup> , 3.78, 3.85 <sup>b</sup>	3.98 <sup>a</sup>	
SiBi	4.01, 4.02 <sup>a</sup>	2.36, 2.36 <sup>a</sup>	4.81, 4.82 <sup>a</sup>	2.62, 2.62 <sup>a</sup> , 2.408 <sup>b</sup>	117.89, 117.92 <sup>a</sup> , 99.88, 99.85 <sup>b</sup>	1.19 ( $\Gamma$ -M), 1.18 <sup>a</sup> , 3.41, 3.56 <sup>b</sup>	0.674 ( $\Gamma$ ), 0.64 <sup>a</sup> , 3.22, 3.31 <sup>b</sup>	

<sup>a</sup> Ref. 33. <sup>b</sup> Ref. 51. <sup>c</sup> Ref. 29. <sup>d</sup> Ref. 42. <sup>e</sup> Ref. 43.

Royal Society Of Chemistry, "Exploration of the strain and thermoelectric properties of hexagonal SiX (X = N, P, As, Sb, and Bi) monolayers" Phys. Chem. Chem. Phys., 2020, 22, 3992

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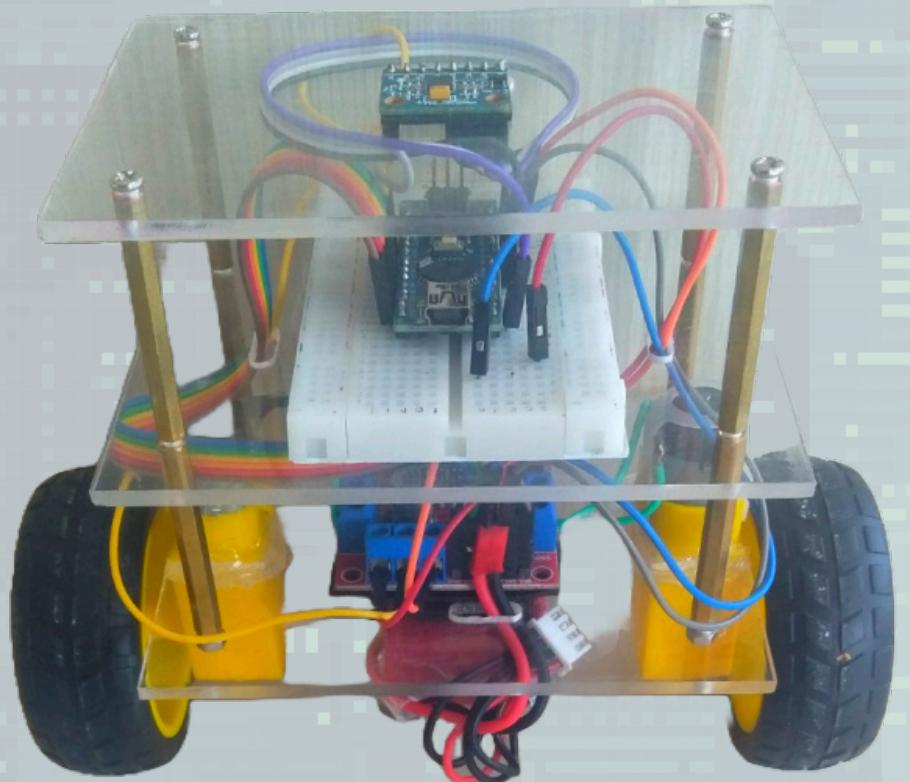
Engaged in an applied research project at BRIN focused on analyzing the electronic properties of thermoelectric materials. The core of this research involved leveraging Quantum Espresso for quantum computations to precisely model material behaviors. The primary objective was to establish a clear distinction between high-performing and suboptimal materials, thereby identifying the most promising candidates for efficient thermoelectric energy conversion.

Click for Full Results Report

Click for Full Results PPT

# Project Portfolio

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[Self-Balancing  
Robot with PID Control](#)



[Smart Gloves](#)  
[Disability Alphabet](#)  
[SIBI Translation with  
Embedded ANN](#)

[AWS DeepRacer](#)  
[Autonomous Car](#)  
[Reinforcement Learning](#)

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# Project Portfolio

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Prediksi Diabetes  
Jawablah pertanyaan-pertanyaan berikut berdasarkan status kesehatan Anda untuk menilai risiko diabetes Anda dan mendapatkan rekomendasi kesehatan yang diperlukan.

Pregnancies: 1 Glucose: 120.00 Blood Pressure: 70.00

Skin Thickness: 20.00 Insulin: 80.00 BMI: 25.00

Diabetes Pedigree Function: 0.450 Age: 30 Gender: 0 = Female, 1 = Male

Polyuria (0 = No, 1 = Yes): 0 Polydipsia (0 = No, 1 = Yes): 0 Sudden Weight Loss (0 = No, 1 = Yes): 0

Polyphagia (0 = No, 1 = Yes): 0 Genital Thrush (0 = No, 1 = Yes): 0 Weakness (0 = No, 1 = Yes): 0

Itching (0 = No, 1 = Yes): 0 Irritability (0 = No, 1 = Yes): 0 Visual Blurring (0 = No, 1 = Yes): 0

Partial Paralysis (0 = No, 1 = Yes): 0 Muscle Stiffness (0 = No, 1 = Yes): 0 Delayed Healing (0 = No, 1 = Yes): 0

Alpecia (0 = No, 1 = Yes): 0 Obesity (0 = No, 1 = Yes): 0

Perkira Risiko Diabetes

Risiko rendah terkena diabetes. Kemungkinan: 0.07

Rekomendasi Kesehatan Anda:

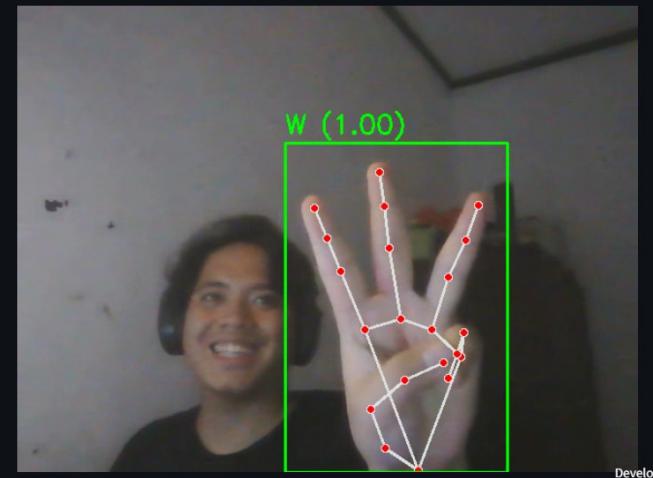
- Risiko diabetes rendah. Perbaikan gaya hidup sehat untuk menjaga kondisi Anda!
- Pola makan seimbang dan pemeriksaan kesehatan rutin sangat disarankan.

Diabetes Risk Prediction and Health Recommendation System with XGBoost Classifier Algorithm

Navier-Stokes 2D Computation Fluid Dynamics Solution with PINNs

## SIBI Real-Time Hand Gesture Recognition

Dashboard ini menggunakan Convolutional Neural Network (CNN) untuk mengenali gerakan tangan Bahasa Isyarat Indonesia (SIBI) secara real-time. Taruh tangan Anda dalam bingkai camera pada dashboard untuk melihat prediksi.



SIBI Hand Gesture Recognition Dashboard with CNN

Click The Title For More Info!

For More Information



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Instagram

[Click Here!](#)



GitHub

[Click Here!](#)



Thank You!!