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# COVER LETTER

*Zulfi Anugerahwati*
Institut Informatika dan Bisnis Darmajaya
*zulfi.2221210036@mail.darmajaya.ac.id*
*081366678286*

August 1st, 2024

Dear,
We wish to submit an original research article entitled “The Efficacy Of PSO In Optimizing The Classification Model: Comparison Of Naive Bayes And Decision Tree C4.5 For Osteoporosis Prediction” for consideration by SINERGI.

We confirm that this work is original and has not been published elsewhere, nor is it currently under consideration for publication elsewhere. We promise not to withdraw this article after it has been processed by the Editorial Team. If there is a withdrawal, we are willing to pay a penalty of USD 150 (IDR 2000K) to the SINERGI Editorial Team.

In this paper, we report on that:

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| Field | : | Data Science and Healthcare |
| Topic | : | The research focuses on implementation of PSO to optimize classification models and feature selection. It compares among Naïve Bayes and Decision Tree C4.5. |
| Brief Background | : | PSO is a population-based optimization method widely used to enhance the performance of machine learning models. Naive Bayes and Decision Tree C.45 are well-known algorithm in classification task. With the increasing prevalence of osteoporosis, early prediction of the disease is the crucial for timely intervention. |
| Research Problem | : | The research problem investigates how effectively PSO enhance the permformance Naive Bayes and Decision Tree C4.5. It explores which of the two algorithm perform better after optimization with PSO. |
| Overview of Method | : | The study uses a relevant dataset for osteoporosis, where PSO is applied to optimize model parameters for Naive Bayes and Decision Tree C4.5. In this research, PSO is specifically utilized for feature selection, aiming to identify features that potentially have a high influence on osteoporosis. The performance of both models is evaluated using standard metrics such as accuracy, precision, and recall. A comparison is made to determine |

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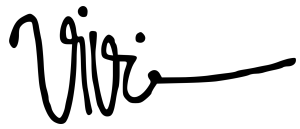
| | | which model is more effective after optimization. |
| Significant finding | : | The findings of this research are expected to demonstrate improved classification model performance after applying PSO. Decision Tree C4.5 demontrates good performance, leading to the recomendation of its to use in osteoporosis prediction. Age, Hormonal Change, Smoking, and Physical Activity significantly influence develop osteoporosis. These findings can also contribute to mitigates the risk of osteoporosis. |

We have no conflicts of interest to disclose.

Thank you for your consideration of this manuscript.

Sincerely,
Zulfi Anugerahwati



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# AUTHORSHIP STATEMENT

I/We wish to submit an original research article entitled "[***title of article***]" for consideration by SINERGI.

All persons who meet authorship criteria are listed as authors, and all authors certify that they have participated sufficiently in work to take public responsibility for the content, including participation in the concept, design, analysis, writing, or revision of the manuscript.

| | | |
|---|---|---|
| **Author 1** | | |
| Name | : | Zulfi Anugerahwati |
| Affiliation | : | Institut Informatika dan Bisnis Darmajaya |
| Email Address | : | zulfi.2221210036@mail.darmajaya.ac.id |
| | | |
| **Author 2** | | |
| Name | : | Sri Lestari |
| Affiliation | : | Institut Informatika dan Bisnis Darmajaya |
| Email Address | : | srilestari@darmajaya.ac.id |
| | | |
| **Author 3** | | |
| Name | : | |
| Affiliation | : | |
| Email Address | : | |
| | | |
| **Author 4** | | |
| Name | : | |
| Affiliation | : | |
| Email Address | : | |

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|---|---|---|
| **Reviewer 1** | : | |
| Name | : | Okfalisa |
| Affiliation | : | Universitas Islam Negeri Sultan Syarif Kasim Riau, Indonesia |
| Email Address | : | okfalisa@gmail.com/okfalisa@uin-suska.ac.id |
| Scopus url | : | https://www.scopus.com/authid/detail.uri?authorId=35102923400 |
| Google Scholar url | : | https://scholar.google.co.id/citations?hl=en&user=7ELU48IAAAAJ&view_op=list_works&sortby=pubdate |
| | | |
| **Reviewer 2** | : | |
| Name | : | Lestari Handayani |
| Affiliation | : | Universitas Islam Negeri Sultan Syarif Kasim Riau, Indonesia |
| Email Address | : | lestari.handayani@uin-suska.ac.id |
| Scopus url | : | https://www.scopus.com/authid/detail.uri?authorId=57194701466 |
| Google Scholar url | : | https://scholar.google.co.id/citations?user=chtvU6AAAAAJ&hl=id |
| | | |
| **Reviewer 3** | : | |
| Name | : | Joko Triloka |
| Affiliation | : | Institut Informatika Dan Bisnis Darmajaya |
| Email Address | : | joko.triloka@darmajaya.ac.id |
| Scopus url | : | https://www.scopus.com/authid/detail.uri?authorId=56401829500 |
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