**BIOS 635**

**Article Evaluation 3**

**Due Date: 3/23/2021 by 11:00PM EST**

**Article:**

**Performance of Activity Classification Algorithms in Free-Living Older Adults** by Sakai et al., *Med Sci Sports Exerc.* (2016)

In a single-spaced, ~1 page report, provide an evaluation of this article. That is, include the following in your report

1. **What research question is being assessed in this paper?**
2. **Why is this question of interest to public health?**
3. **What are the researchers creating a machine learning algorithm to do? How is a development of an algorithm usual in this paper’s medical/scientific field?**
4. **What is the outcome of interest to predict in this paper? What are the features used to predict (generally speaking)?**
5. **Describe the data which is being used for training and testing the algorithm. How were these two datasets created or were they obtained from two separate samples? Are the testing and training datasets of different subjects? What are the populations from which these samples derive from? Are the populations the same as each other? If not, what reason(s) do the author give for using different populations to train or test, and critically assess these reasons. If they are the same, do the same critique. What is the sample size, prevalence, etc. for these samples. Are these samples reflective of the populations mentioned? What groups are not represented in the samples?**
6. **What general model/method is used to derive the machine learning algorithm?**
7. **What metrics do the authors use to evaluate the algorithm? Do compare the algorithm to other screening/predictive methods? If so, what are they and why do they use these for comparison?**
8. **How well does the algorithm do compared to these other methods, based on the above metrics? Please cite the numbers provided in the paper/**
9. **What are the limitations of these results? (e.g. who do these results pertain to, and who do they not? Are the limits based on how they evaluated or built the algorithm or based on their sample(s)?) Do authors specify these limitations explicitly in the paper?**
10. **How well was the analysis plan described? Was it easy to understand or were there areas which you found poorly described given your knowledge so far in machine learning?**
11. **Try to relate the research question, topic, and/or results and methods to your own experience in public health, scientific research, past courses, or general life experience.**