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FRACTURE EVALUATION AND PREDICTION OF OUTCOME AFTER A FRACTURE USING ARTIFICIAL NEURAL NETWORKS

ERRATA

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Errata

Abstract, second page under Study IV. "We tried a range of network configurations and found that the CNN's ability to predict PROM after one year (PROM1) or death was variable. At best, the root mean squared errors (RMSE) and **mean absolute error** (MAE) were on par with the standard deviation or **mean absolute deviation (MAD).**"

List of abbreviations is missing:

- "MAE – Mean absolute error"
- "MSE – Mean squared error"
- "PID – Personal identification number".
- "RMSE – Root mean squared error"

Page 4. First use of PID is missing the full terminology and should read "... collected via the **personal identification number (PID)** from the..."

Page 6. Last paragraph before "1.2 Fracture classification" should clarify that "Comparing SFR responders to non-responders, they found that non-responders and responders had similar functions, **for the radius, ulna, and humerus fractures they studied.**"

Page 8. End of second paragraph end of the last line, should read: "... image in its original size, which was not **the case** in Study I."

Page 11. Second paragraph. After stating that "ML algorithms focus on parts of the problem, like computing rewards or learning." It should say "**They derive** the way to combine the features..."

Page 31. End of "Balanced vs. imbalance problems" should say "... be **one** in a ten thousand..."

Page 32. The definition of the expected accuracy of a random classifier is missing definitions of i , n and p . i is the i :th class, n is the total number of classes, and p_i is the probability of the i :th class. p_i^2 is the probability that both the true and predicted class is p .

Page 36. Last paragraph should not have a ")" at the end of the second sentence.

Page 38. In the last paragraph, "S:t Göran Hospital Södersjukhuset" should be "S:t Göran Hospital, Södersjukhuset" i.e., separated by a comma ','.

Page 39. The "3)" in the figure text should be removed.'

Page 43. Section 3.6.4.1. A paragraph missing between the second and third paragraph:

"We also compared the MAE to the mean absolute deviation (MAD) for the ordinal outcomes. The MAE needed to be lower than the MAD for the model to be useful. In the context of ordinal datasets, the MAD is usually the preferred measure of dispersion. The MAD and MAE do not assume equal intervals between values, as the SD does, and is less sensitive to outliers. However, since we were most interested in the outliers, i.e. the patients that did not conform to the average patient, we focused more on the RMSE during development. Once the model showed valuable performance, more appropriate performance measure would be used. Other metrics that focus on outliers and are well suited to ordinal data, are ordinal log-loss, weighted MAE, or weighted kappa."

Page 44. Third paragraph "..., we want to predict ..." should read "..., we **wanted** to predict ..."

Page 45. The subheading says, "Linear Regression". It should only say "Regression".

Page 60. Figure 12. Lower left of the flowchart in creating the test set. 489 fractures and 421 patients were excluded due to the fracture not being in the lower extremities. See Figure 1 below for corrected figure.

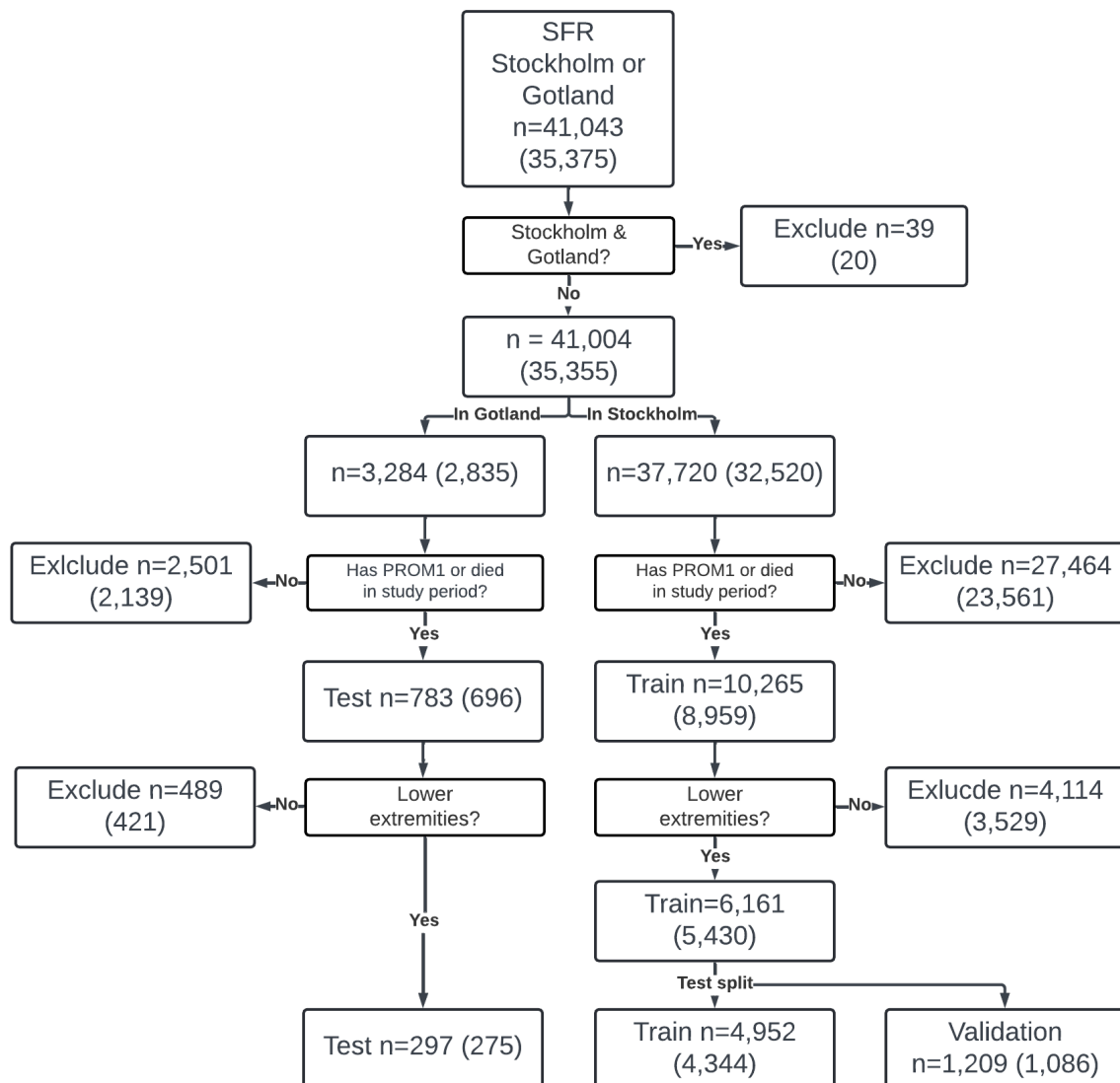


Figure 1. Corrected Figure 12 on page 60 in thesis. The number of excluded fractures that were not lower extremity fractures in the Gotland data has been updated.

Page 69. The table headings for Table 13 should all be boldface.

Page 79. The subheading "18b. Complex classifiers" in table 18 should be center aligned.

Page 89. In acknowledging the Max Gordon it should read "Your **breadth** and depth of competence..."

Page 90. In the end of the dedication "To my friends and loved ones thorough out the years..." it should end with "... long after **our** paths crossed."