Wald and Z-Test
A Good Example To Compute Interaction Between Human and Machines
A Case Study with Facebook
(July 2017)

Author: Heider Jeffer ©2017

DIGITLIZE HUMAN EMUTIONS
A New Idea Start With Facebook

- **Digitize the human feeling to be computable**
- **A new dimension in machine learning**
- **Computing Three States of Human Imation Satisfaction, Failure and Success**
- **Easy to apply. Easy To prove**

Wald´s Equation and Z-Test A Good Example To Compute The Human Interaction Toward The Machines : A Case Study with Facebook

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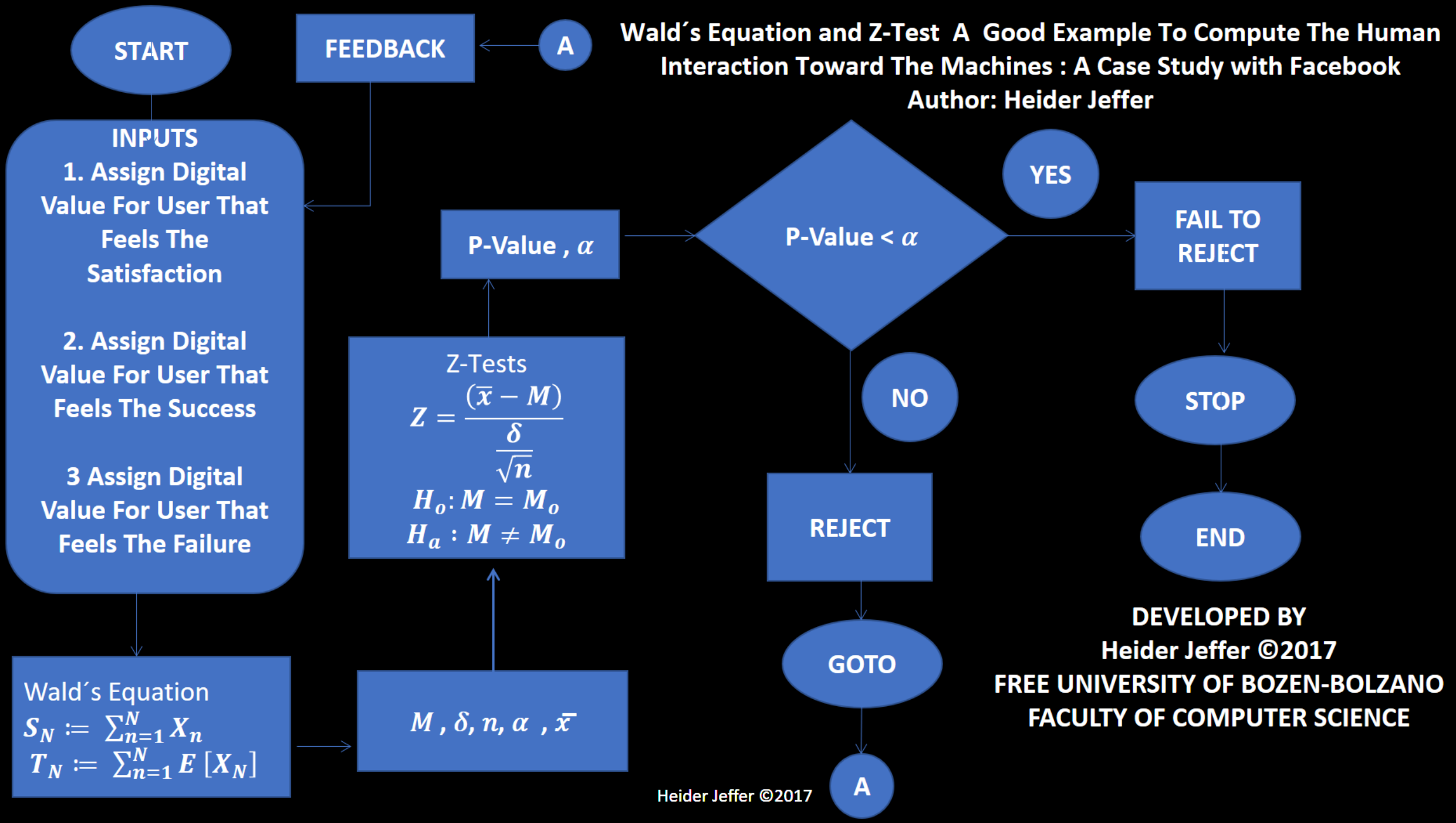

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FREE UNIVERSITY OF BOZEN-BOLZANO
FACULTY OF COMPUTER SCIENCE

INPUTS PROCESS OUTPUTS

INPUTS ~~PROCESS~~ ~~OUTPUTS~~

1

Assign Digital Value For User That Feels The Satisfaction

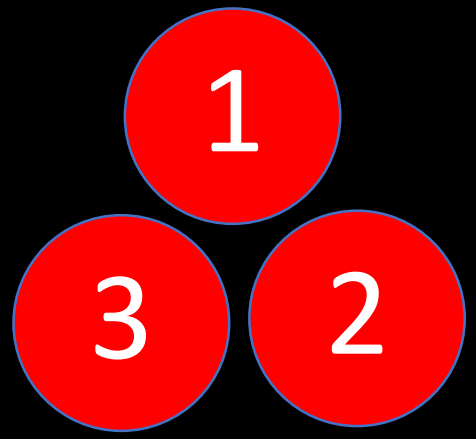
INPUTS ~~PROCESS~~ ~~OUTPUTS~~

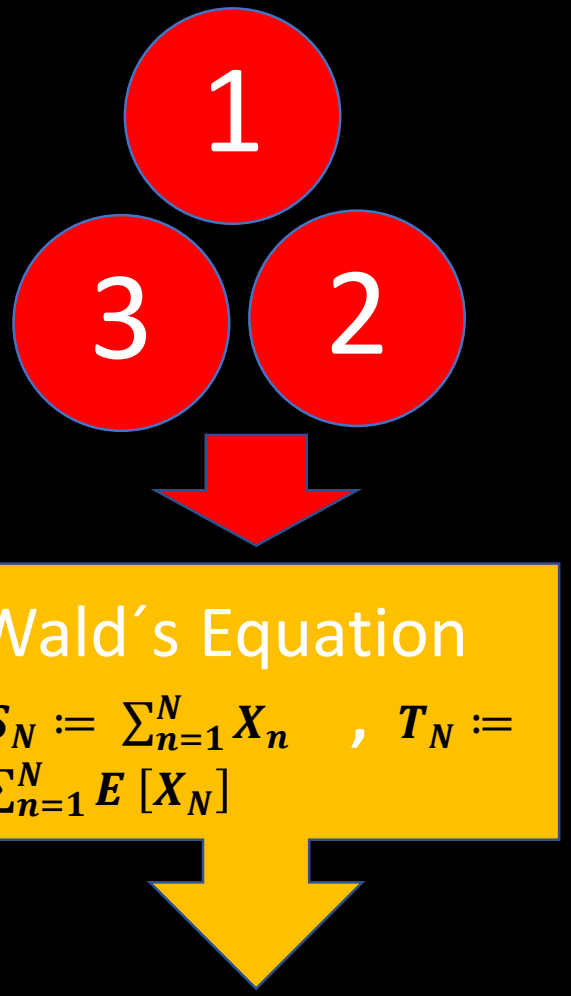
INPUTS ~~PROCESS~~ ~~OUTPUTS~~

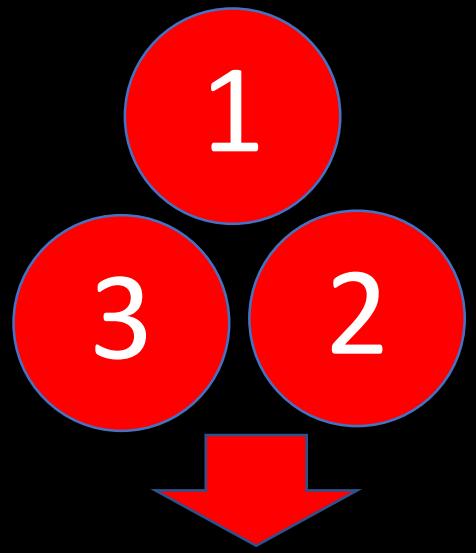
3

Assign Digital Value For User That Feels The Failure

INPUTS ~~PROCESS~~ ~~OUTPUTS~~




1
3
2
Wald´s Equation
$S_N := \sum_{n=1}^{N} X_n$, $T_N := \sum_{n=1}^{N} E[X_N]$



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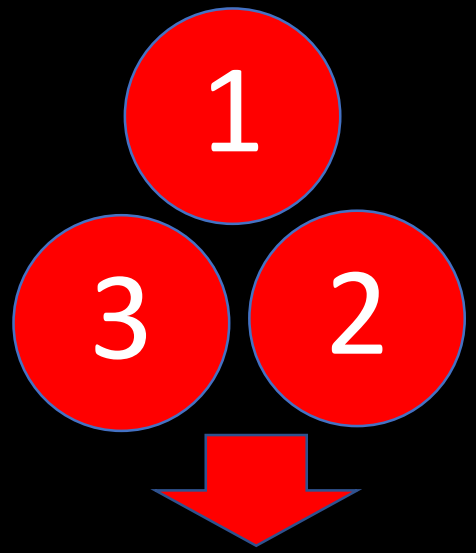
$\mathbf{M = 7.4 \;\; \delta = 1.9 \;\; n = 13 \;\; \bar{x} = 8.1 \, , \alpha \; = 0.05}$



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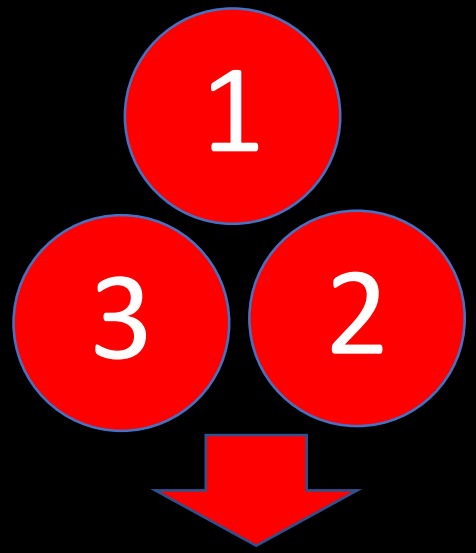
Z-Tests

$$Z = \frac{(\bar{x} - M)}{\frac{\delta}{\sqrt{n}}}$$

$H_o: M = M_o$

$H_a : M \neq M_o$



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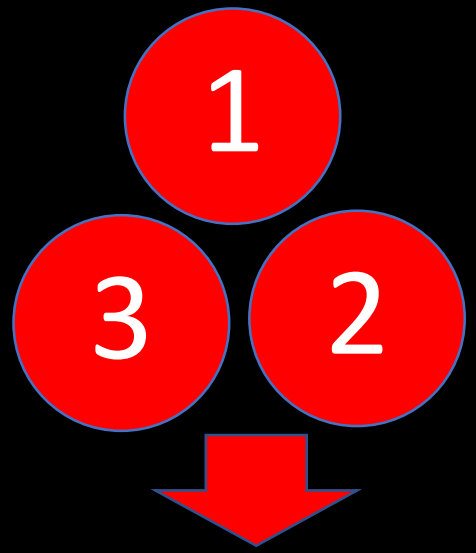
P-Value = 0.0404
< Alpha = 0.05



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P-Value < α

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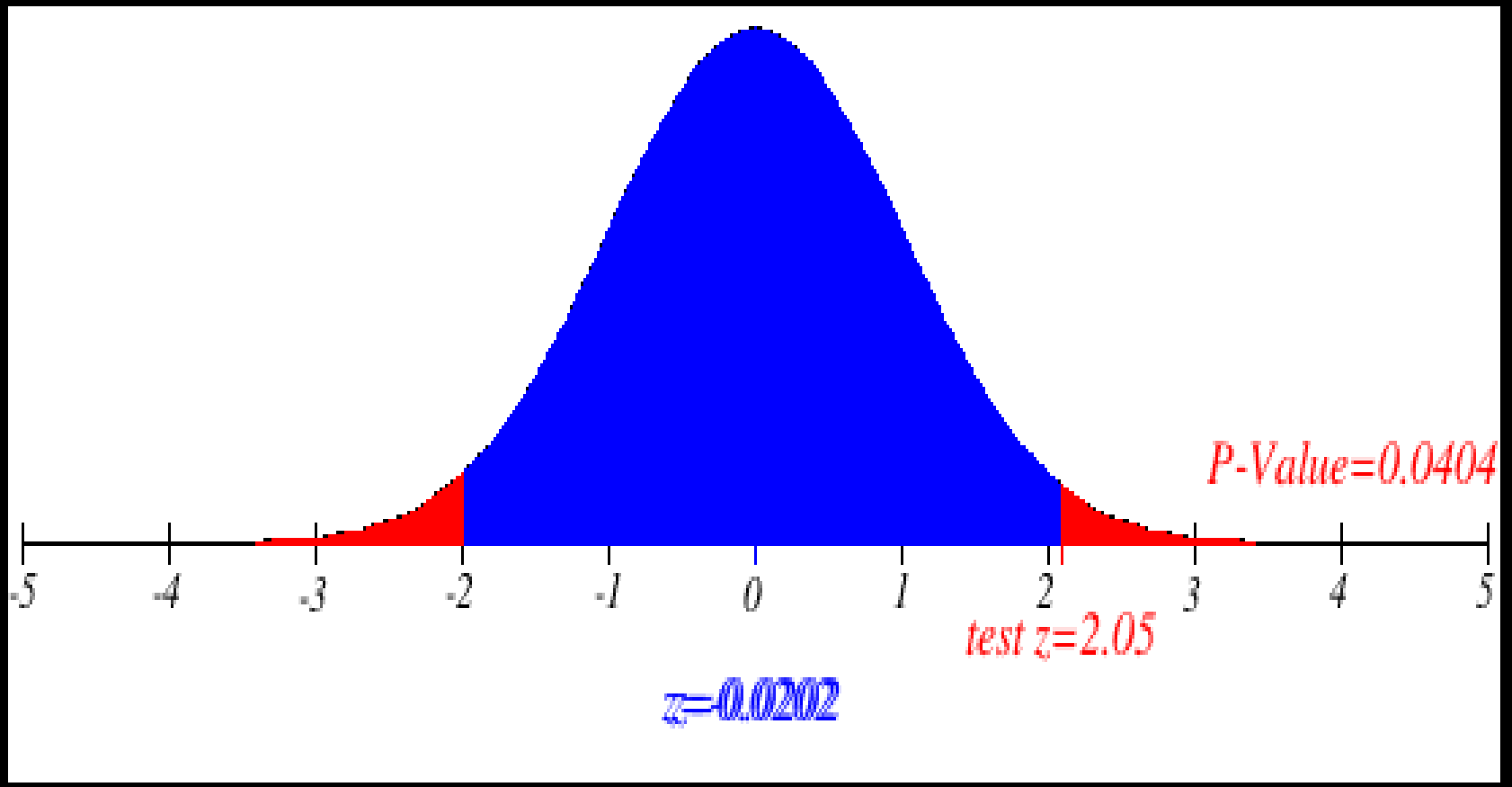
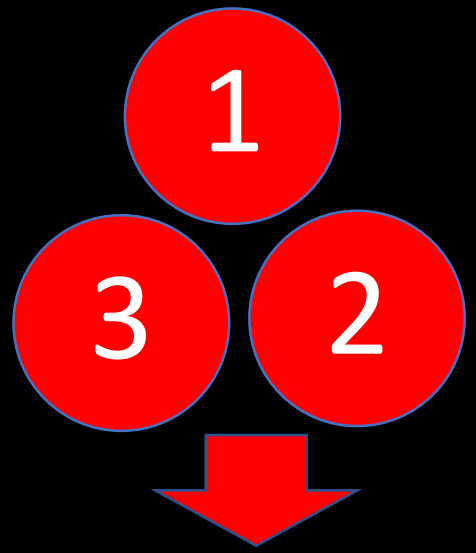


At the 1% significant level the data do provide significant evidence to conclude that the mean of our [Wald´s results for all 13 users in facebook] is differ from 7.4. We are 99% confidence that the mean of [Wald´s results for all 13 users in facebook] is greater than 7.4. We fail to reject



WE ARE DONE

☺

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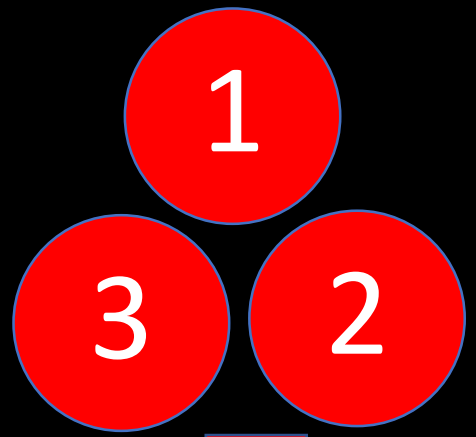
Fail To Reject



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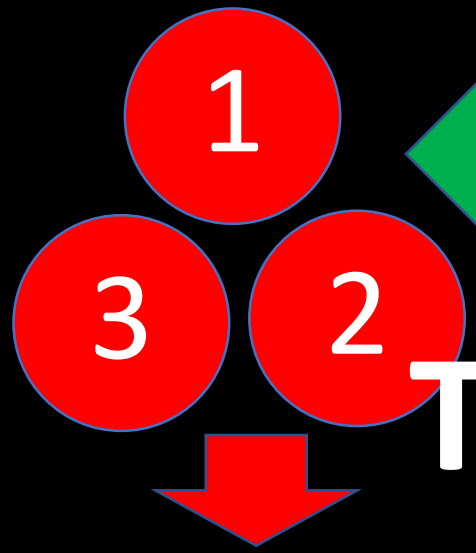
Reject



FEEDBACK

Reject

THIS IS NOT OUR PART

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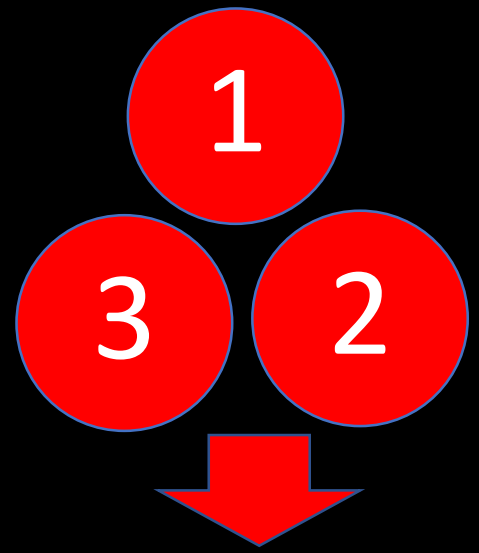

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FEEDBACK

Fail To Reject

Related Work

- my deepest gratitude to, Professor Rosella Gennari. She is a professor of human machine interaction at the Faculty of Computer Science of the Free University of Bozen-Bolzano, for the great collaboration on this research
- Big thanks goes to Professor Leonardo Ricci. He is aggregate Professor at Department of Physics, Interdepartmental Center Mind / Brain – CIMEC, for his help in the Wald`s Z-Test to prove the realistic of Wald
- Thank You (E. Levin) You gave us a better understanding on what kind of impact Wald´s equation could have in the audio, visualization, and eye scanning.
- Thank You A lot I. Scott MacKenzie article "Fitts' law as a research and design tool in human-computer interaction" helped us out with its detailed information about how to make a statistic test to investigate the interaction between the user and the machine

Final Considerations
WELCOME TO THE FUTURE

- Although this research was designed with a very small scope, including only the Facebook participants
- now we can say this research has a positive impact on software designers, and machine learning
- This research is success to compute the human behavior toward the machine which is every thing the software designers need to create a software that able to improve the UX
- Above all computing the human activities help the AI to improve the machine learning
- We can say that. Yes it is possible to design a model to compute the interaction between machine and human

Thank You For Your Attention

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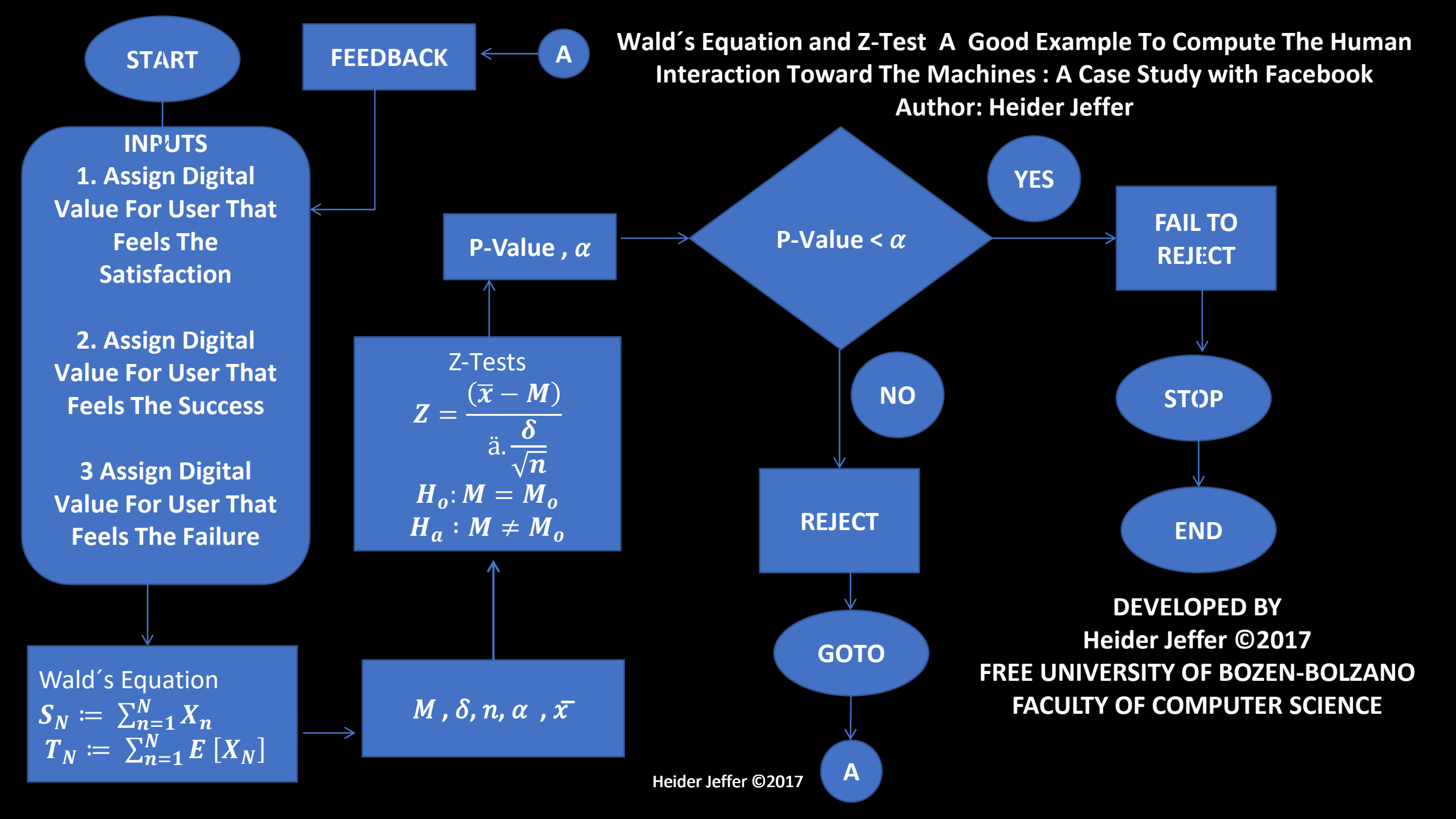
Questions ?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START
FEEDBACK
A
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3 Assign Digital Value For User That Feels The Failure
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P-Value , α
P-Value < α
YES
NO
FAIL TO REJECT
STOP
END
REJECT
GOTO
A
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