Science, meet World

Lessons from applying gesture recognition to sign language alphabets

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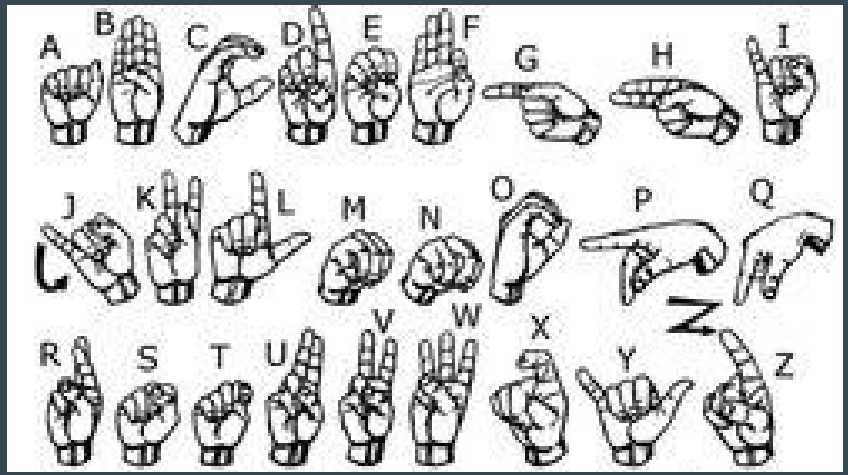
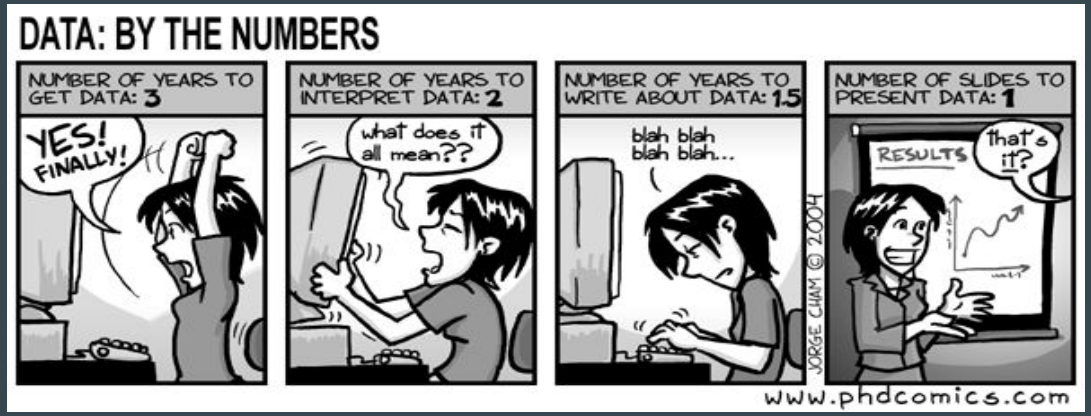
Background

- Research questions, aims
- Gesture recognition and machine learning
- Why sign languages?
  - Why the alphabet?
- Devices



Data gathering!


DATA: BY THE NUMBERS
NUMBER OF YEARS TO GET DATA: 3
YES! FINALLY!
NUMBER OF YEARS TO INTERPRET DATA: 2
what does it all mean??
NUMBER OF YEARS TO WRITE ABOUT DATA: 1.5
blah blah blah blah...
NUMBER OF SLIDES TO PRESENT DATA: 1
RESULTS
that's it?
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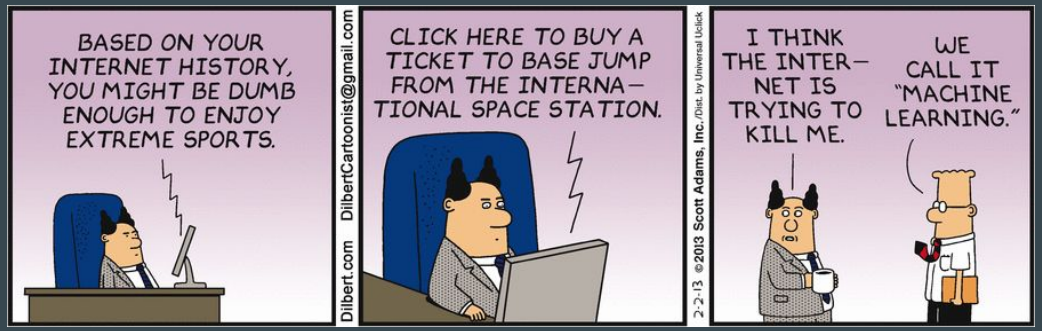
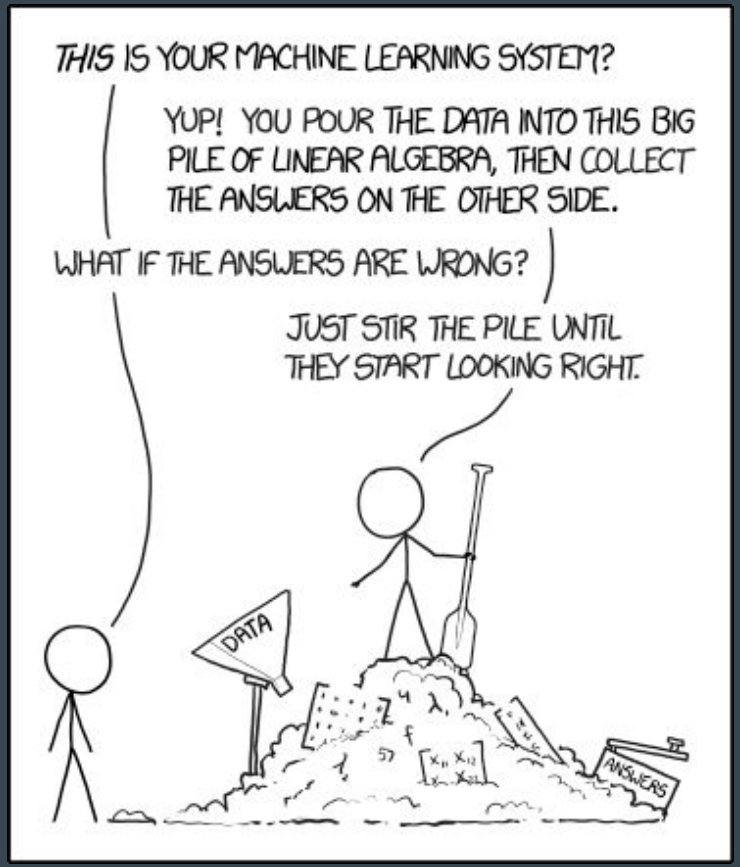
Machine learning!


BASED ON YOUR INTERNET HISTORY, YOU MIGHT BE DUMB ENOUGH TO ENJOY EXTREME SPORTS.
Dilbert.com DilbertCartoonist@gmail.com
CLICK HERE TO BUY A TICKET TO BASE JUMP FROM THE INTERNATIONAL SPACE STATION.
2-2-13 ©2013 Scott Adams, Inc. /Dist. by Universal Uclick
I THINK THE INTERNET IS TRYING TO KILL ME.
WE CALL IT "MACHINE LEARNING."


THIS IS YOUR MACHINE LEARNING SYSTEM?
YUP! YOU POUR THE DATA INTO THIS BIG PILE OF LINEAR ALGEBRA, THEN COLLECT THE ANSWERS ON THE OTHER SIDE.
WHAT IF THE ANSWERS ARE WRONG?
JUST STIR THE PILE UNTIL THEY START LOOKING RIGHT.
DATA
ANSWERS

Results*

*Just the best per device, read our papers for details

Research question

Myo

Extra Trees
8.05 %

Best in literature:
Artificial Neural Network
100%

Leap

Support Vector Machines,
52.0 %

Best in literature:
Artificial Neural Networks,
99.1%

Kinect

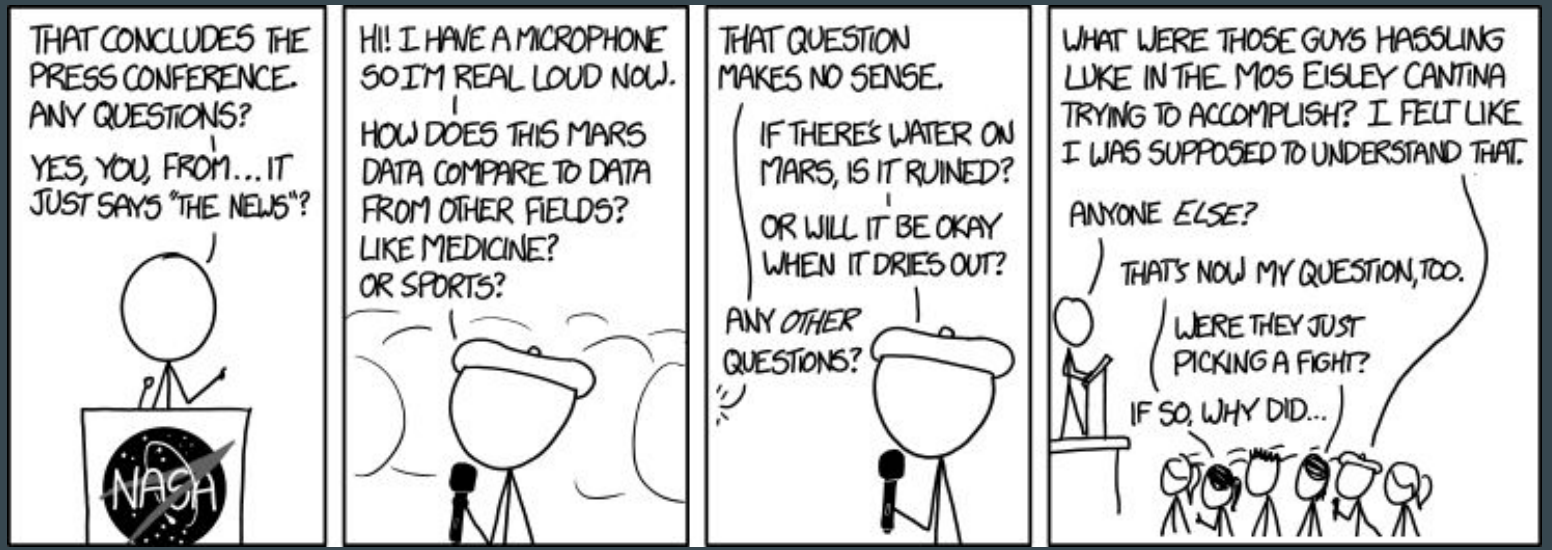
Support Vector Machines,
75.9 %

Best in literature:
Artificial Neural Networks,
100%

Lessons learnt

- EMGs are inherently difficult
- Naturalistic settings make ML extremely difficult

Questions


THAT CONCLUDES THE PRESS CONFERENCE. ANY QUESTIONS?
YES, YOU, FROM... IT JUST SAYS "THE NEWS"?
NASA
HI! I HAVE A MICROPHONE SO I'M REAL LOUD NOW.
HOW DOES THIS MARS DATA COMPARE TO DATA FROM OTHER FIELDS? LIKE MEDICINE? OR SPORTS?
THAT QUESTION MAKES NO SENSE.
IF THERE'S WATER ON MARS, IS IT RUINED?
OR WILL IT BE OKAY WHEN IT DRIES OUT?
ANY OTHER QUESTIONS?
WHAT WERE THOSE GUYS HASSLING LUKE IN THE MOS EISLEY CANTINA TRYING TO ACCOMPLISH? I FELT LIKE I WAS SUPPOSED TO UNDERSTAND THAT.
ANYONE ELSE?
THAT'S NOW MY QUESTION, TOO.
WERE THEY JUST PICKING A FIGHT?
IF SO, WHY DID...