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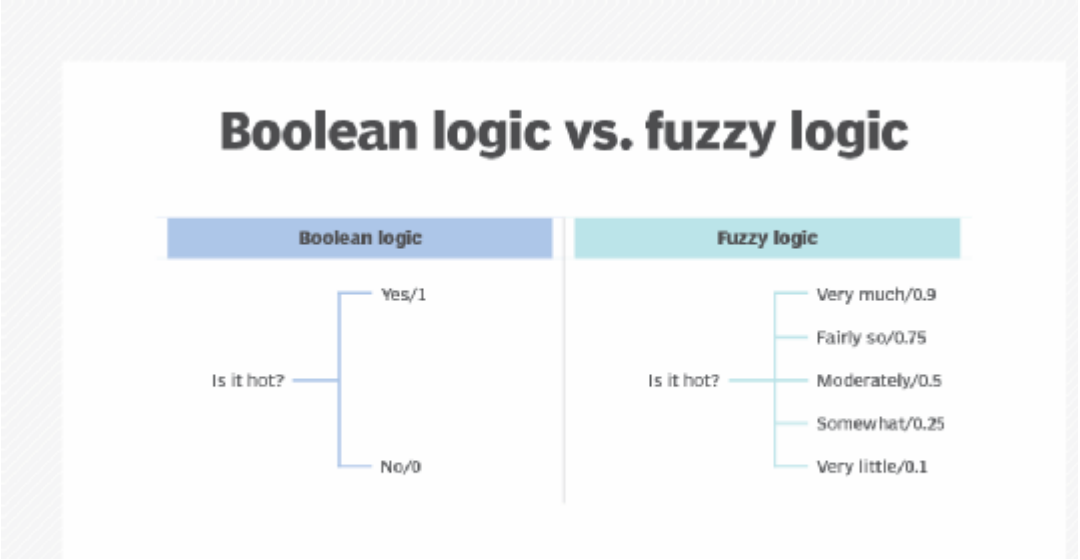
Student ID: 245784

Assignment 3: Fuzzy Logic

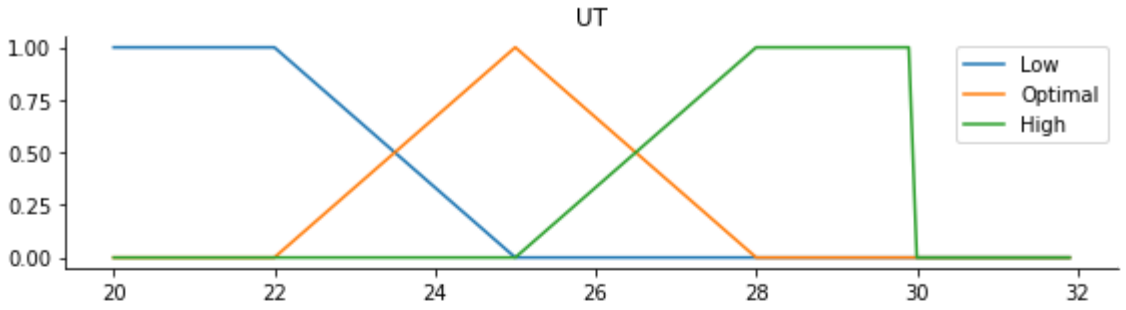
Fuzzy Logic”

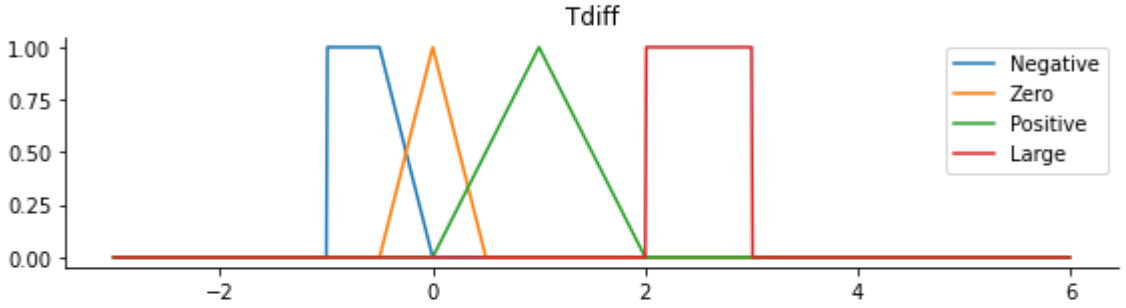
Fuzzy logic is an approach to computing based on "degrees of truth" rather than the usual "true or false" (1 or 0) Boolean logic on which the modern computer is based.

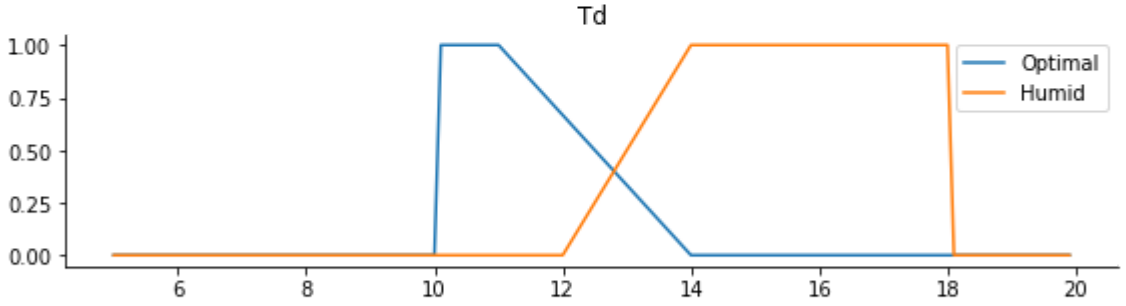


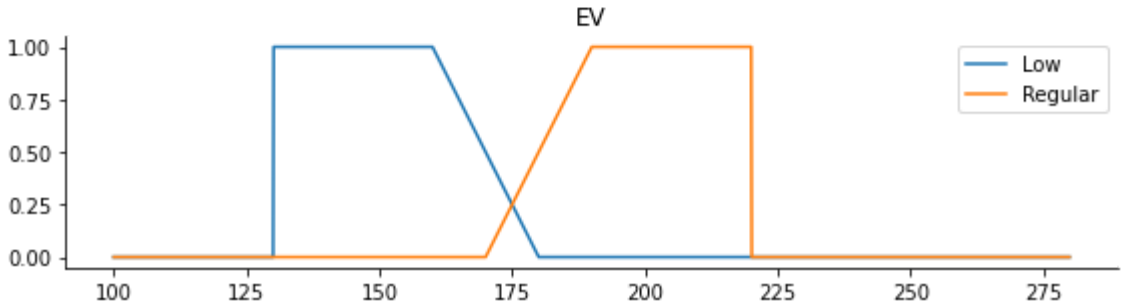
Our input Variable

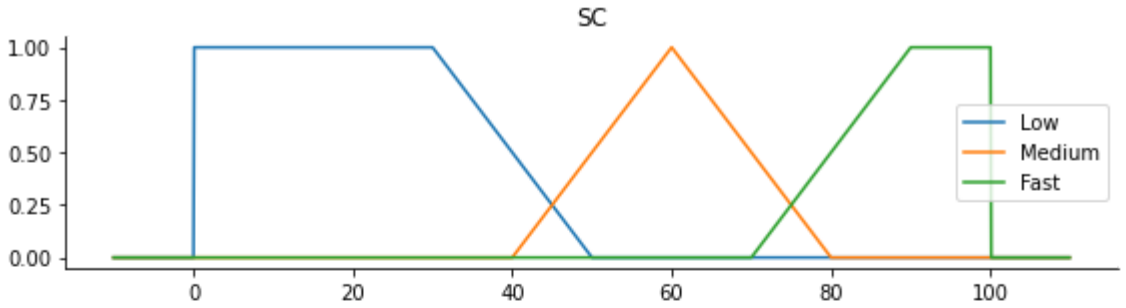
```
User temperature (UT) = 20, 32, 0.1
Temperature difference (Tdif) = -3, 6, 0.01
Dew Point = 5, 20, 0.1
Electric Volt (EV) — = 100, 280, 0.1
```

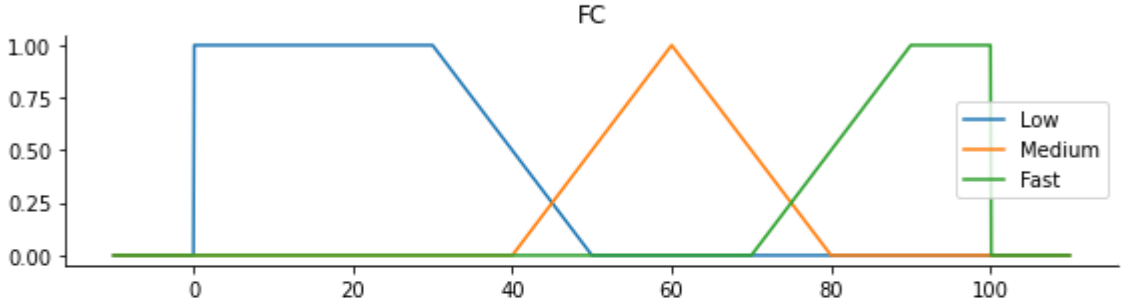

UT
1.00
0.75
0.50
0.25
0.00
20
22
24
26
28
30
32
Low
Optimal
High

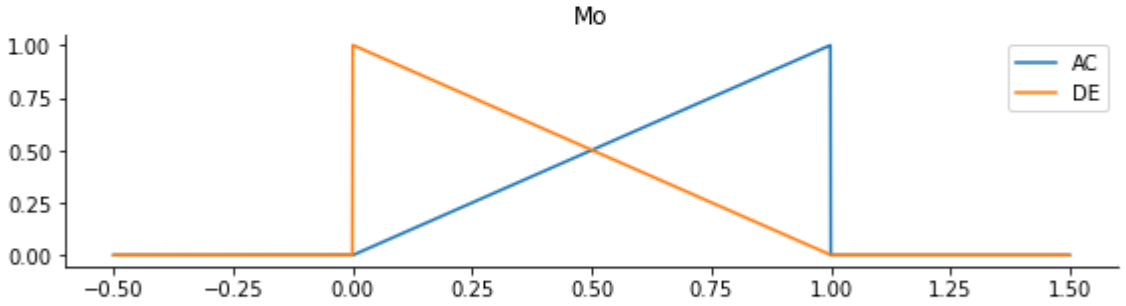

Tdiff
1.00
0.75
0.50
0.25
0.00
−2
0
2
4
6
Negative
Zero
Positive
Large

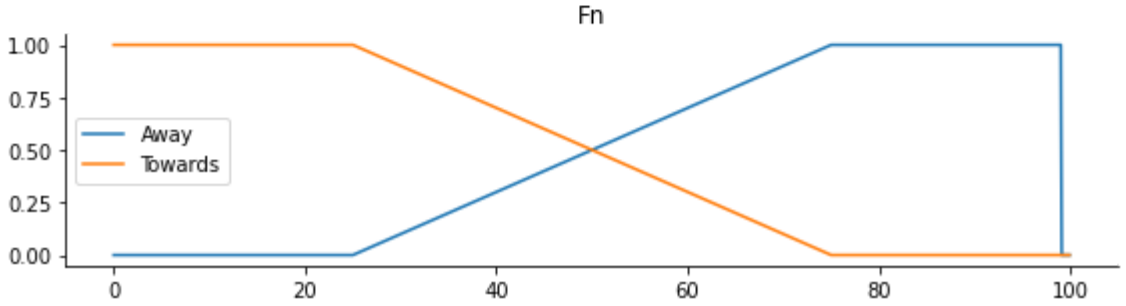

Td
1.00
0.75
0.50
0.25
0.00
6
8
10
12
14
16
18
20
Optimal
Humid

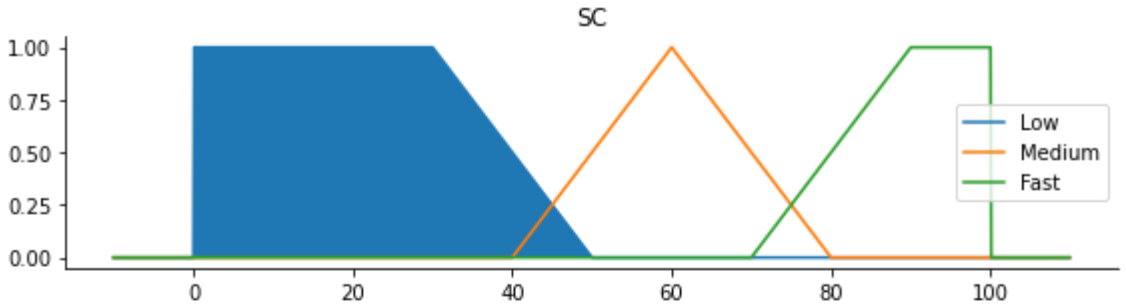

EV
1.00
0.75
0.50
0.25
0.00
100
125
150
175
200
225
250
275
Low
Regular

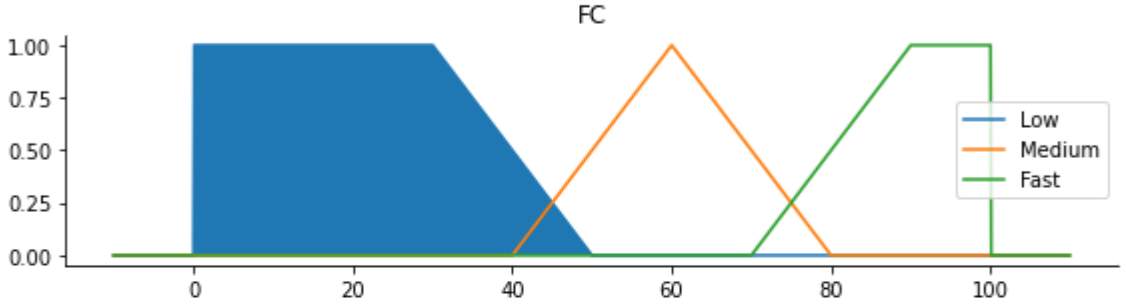

SC
1.00
0.75
0.50
0.25
0.00
0
20
40
60
80
100
Low
Medium
Fast

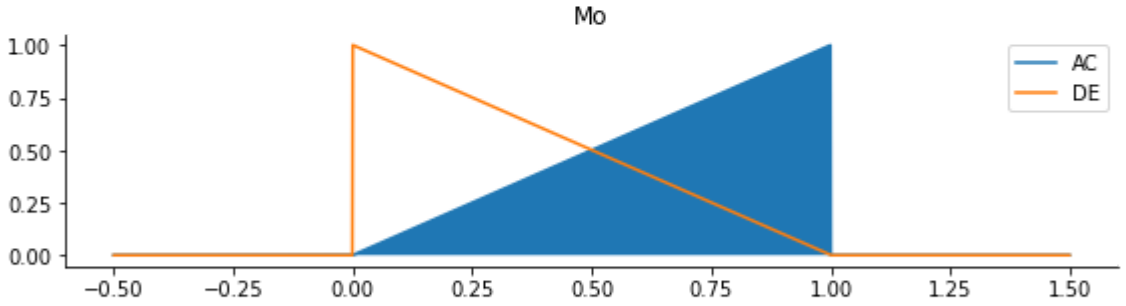

FC
1.00
0.75
0.50
0.25
0.00
0
20
40
60
80
100
Low
Medium
Fast

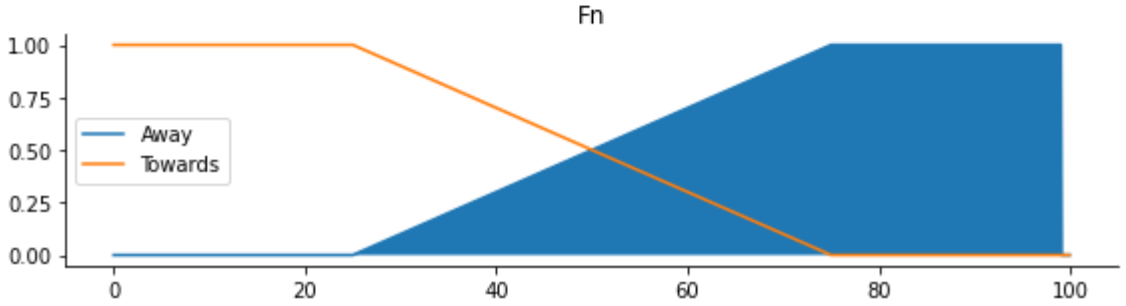

Mo
1.00
0.75
0.50
0.25
0.00
−0.50
−0.25
0.00
0.25
0.50
0.75
1.00
1.25
1.50
AC
DE


Fn
1.00
0.75
0.50
0.25
0.00
0
20
40
60
80
100
Away
Towards

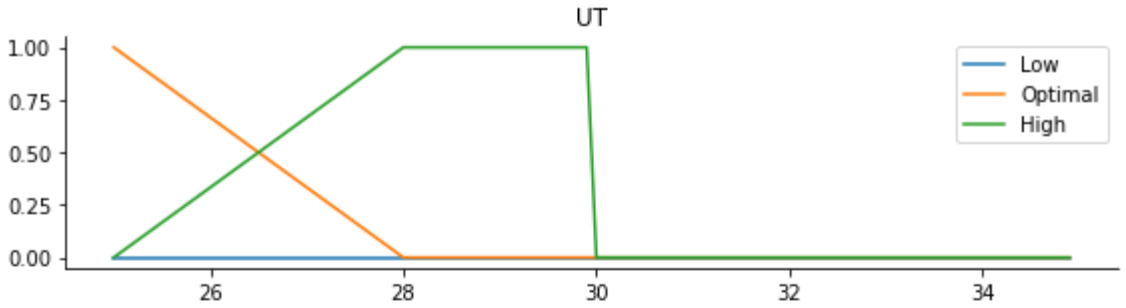

SC
1.00
0.75
0.50
0.25
0.00
0
20
40
60
80
100
Low
Medium
Fast

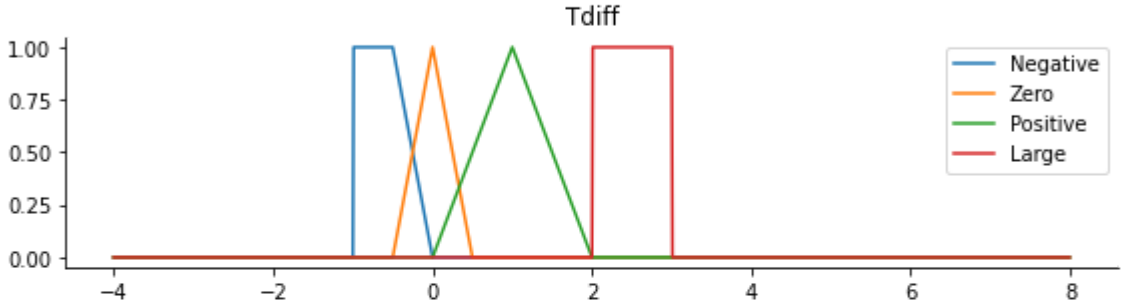

FC
1.00
0.75
0.50
0.25
0.00
0
20
40
60
80
100
Low
Medium
Fast

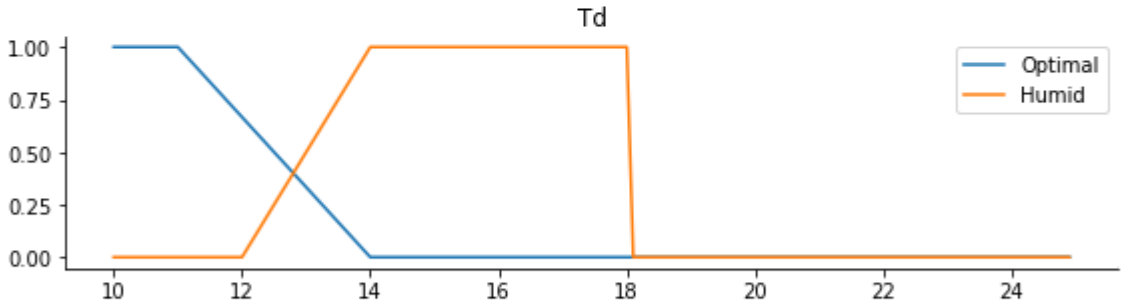

Mo
1.00
0.75
0.50
0.25
0.00
−0.50
−0.25
0.00
0.25
0.50
0.75
1.00
1.25
1.50
AC
DE

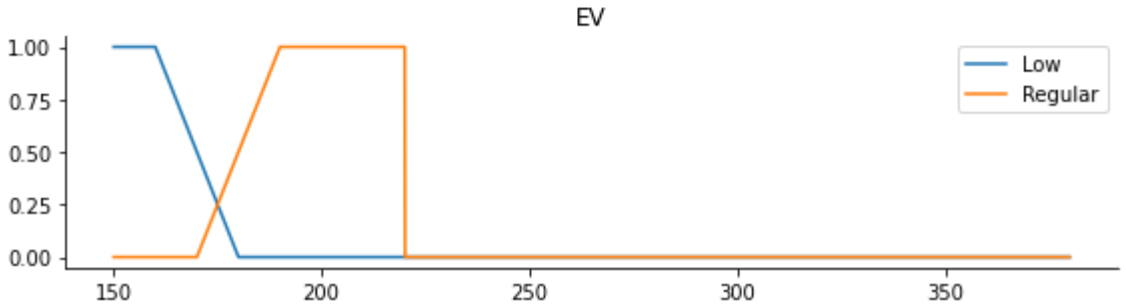

Fn
1.00
0.75
0.50
0.25
0.00
0
20
40
60
80
100
Away
Towards

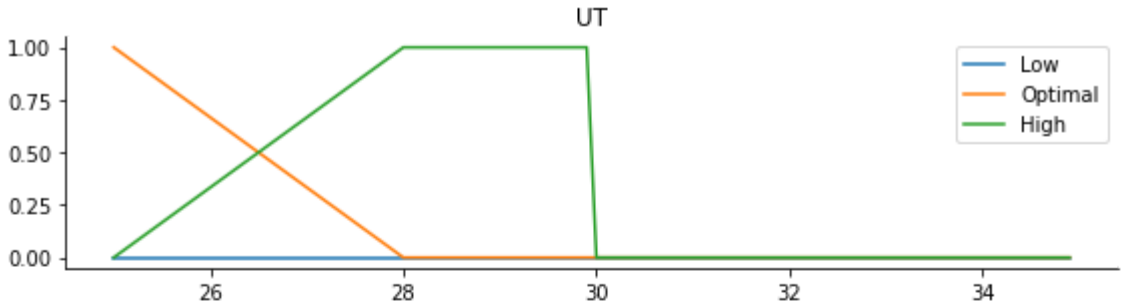
Input Variable and output variable Slight Changes

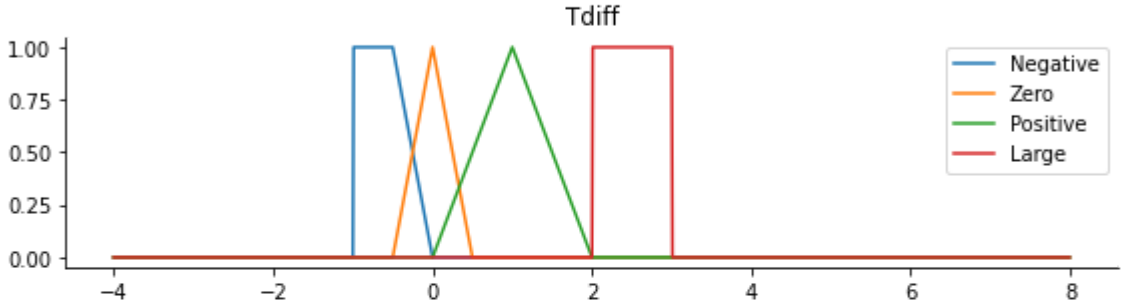

UT
1.00
0.75
0.50
0.25
0.00
26
28
30
32
34
Low
Optimal
High

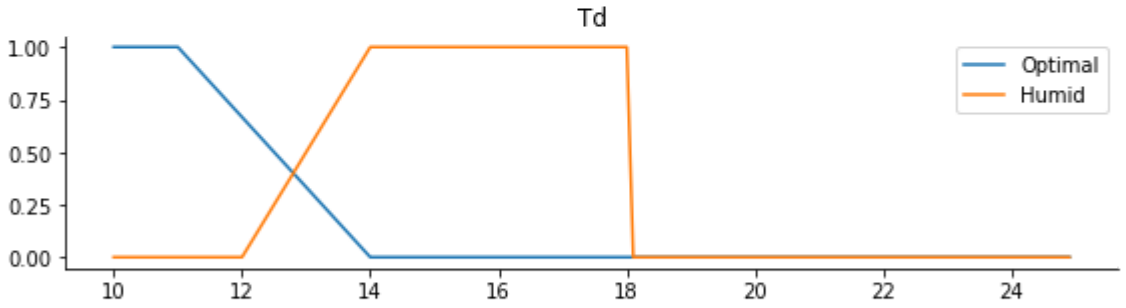

Tdiff
1.00
0.75
0.50
0.25
0.00
−4
−2
0
2
4
6
8
Negative
Zero
Positive
Large

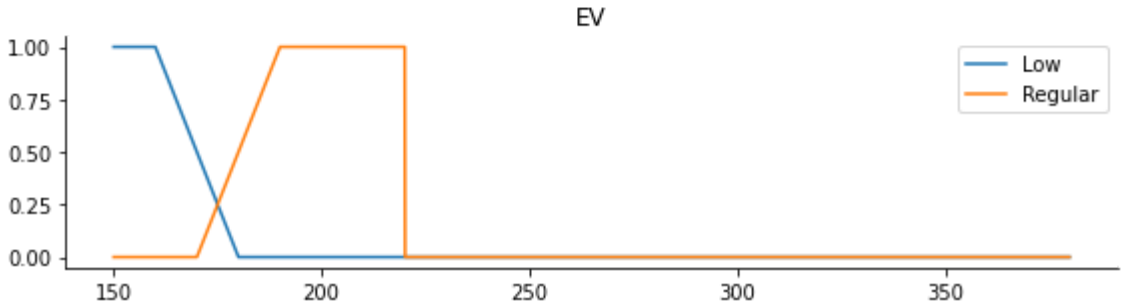

Td
1.00
0.75
0.50
0.25
0.00
10
12
14
16
18
20
22
24
Optimal
Humid

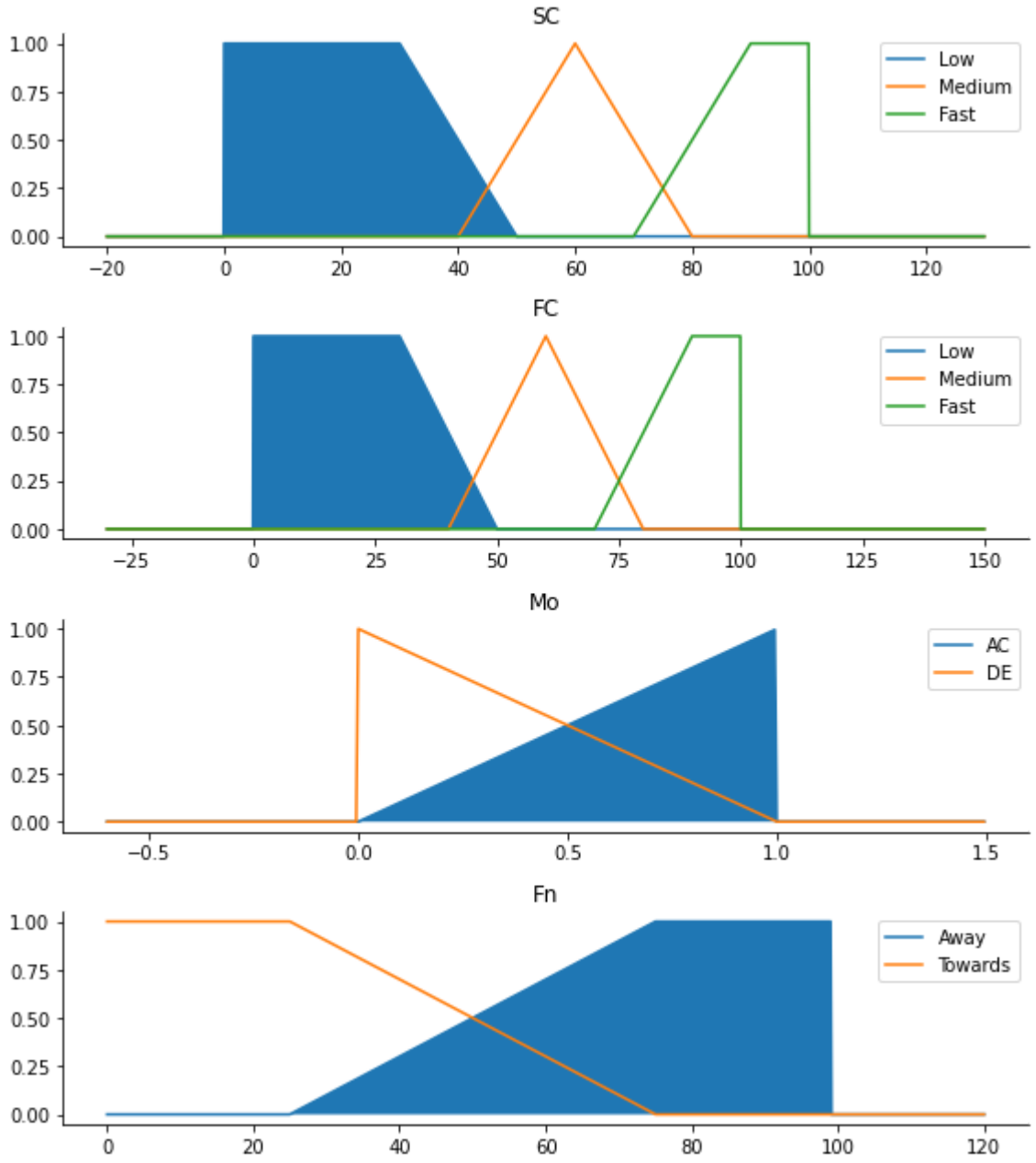

EV
1.00
0.75
0.50
0.25
0.00
150
200
250
300
350
Low
Regular


UT
1.00
0.75
0.50
0.25
0.00
26
28
30
32
34
Low
Optimal
High


Tdiff
1.00
0.75
0.50
0.25
0.00
−4
−2
0
2
4
6
8
Negative
Zero
Positive
Large


Td
1.00
0.75
0.50
0.25
0.00
10
12
14
16
18
20
22
24
Optimal
Humid


EV
1.00
0.75
0.50
0.25
0.00
150
200
250
300
350
Low
Regular



Compressor Speed	**20.442177722152795**	**20.39113607990025**
Fan Speed	**20.442177722152795**	**20.39113607990033**
Mode of Operation	**0.6663333333333341**	**0.6650000000000013**
Fin Direction	**72.40132517838995**	**72.40128483730285**

3. CONCLUSION

The fuzzy logic can improve a lot the way we program machines to make decision and help us doing tasks while taking the right actions, it takes a crisp input, and it fuzzifies the input in order to work with it, then it applies the given rules for making the decision, and finally it defuzzified the result to give a clean and crisp output, friendly to the user, what makes it easier to understand