Results

Supervised ML tasks (One vs. Rest)

Duration of response after surgery

0   1   5

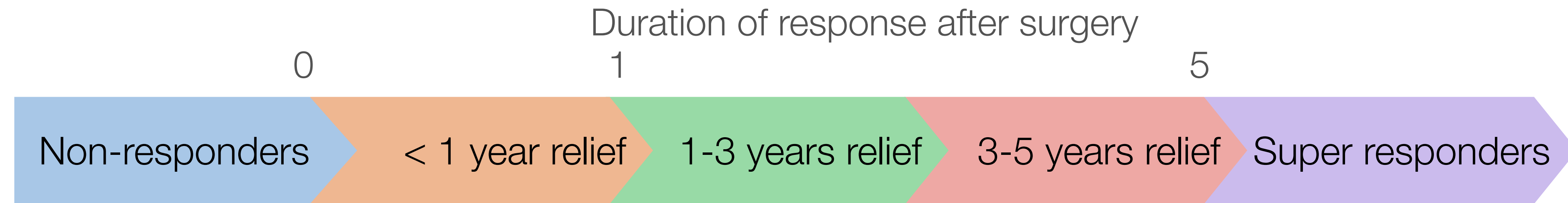| Non-responders | < 1 year relief | 1-3 years relief | 3-5 years relief | Super responders |

Responders

Responders vs. Non-responders

- Average accuracy - 94%
- Non-responders recall - 0.97
- Responders recall - 0.88

<1 year relief vs. rest

- Average accuracy - 86%
- <1 year recall - 0.7
- Rest recall - 0.95

1-3 years relief vs. rest

- Average accuracy - 91%
- 1-3 years recall - 0.75
- Rest recall - 0.97

3-5 years relief vs. rest

- Average accuracy - 93%
- 1-3 years recall - 0.78
- Rest recall - 0.95

≥5 years relief vs. rest

- Average accuracy - 87%
- ≥5 years. recall - 0.8
- Rest recall - 0.9

Classes defined by duration of surgical response are distinguishable

Results

Example of the grading

- Subject is graded based on the clinical expression of pain

- Total score determines the position of subject on a scale

- Scale sections correspond to different levels of surgical response

- Final grade is being confirmed with Supervised ML task and pre-surgical imaging data

Feature (factors -1 and 1)	PC Weight	Test subject scoring	Scoring
Medication relief	0.58	1 (Medication helps)	0.58
Rare pain attacks	0.44	-1 (Seasonal pain)	-0.44
Seasonal pain attacks	0.38	1 (Seasonal pain - winter)	0.38
Multiple attacks daily	-0.25	-1 (Seasonal pain)	0.25
Sex	0.23	1 (Female)	0.23
Hypothyroid (on medication)	0.22	-1 (No thyroid problems)	-0.22
Type 2 diabetes	-0.19	-1 (No diabetes)	0.19
Constant pain	-0.18	-1 (No constant pain)	0.18
Spontaneously triggered pain	-0.17	-1 (Pain triggered by wind)	0.17
Cancer history	-0.13	-1 (No history of cancer)	0.13
Shock-like pain	0.13	1 (Electric shock-like pain)	0.13
		Total score	1.58

Grading a test subject

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