

Generalized Additive Models (GAMs)

CMDA 4654 Project 2

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Generalized Additive Models



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@ucfagls

Replying to @millerdl

140 char vrsn

- 1 GAMs are just GLMs
- 2 GAMs fit wiggly terms
- 3 use + s(foo) not foo in frmla
- 4 use method = "REML"
- 5 gam.check()

2:37 PM · Mar 16, 2017 · TweetDeck

Generalized Additive Models

- Type of generalized linear model
- Response variable depends on smooth functions $f_i(x_i)$
- General structure of a GAM:
$$g(E(Y)) = \beta_0 + f_1(x_1) + f_2(x_2) + \cdots + f_n(x_n)$$
- Smooth functions can be many different things (polynomials, splines, weighted means, etc)

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Example - iris

```
library(mgcv)
```

```
## Loading required package: nlme
```

```
## This is mgcv 1.8-33. For overview type 'help("mgcv-package")'
```

```
data("iris")
```

Example - iris

Example - iris

Example - iris

Example - mtcars

```
data("mtcars")
```

Example - mtcars

Example - mtcars

Example - mtcars

Example - Health Data

```
# df <- read.csv('health_data.csv')  
# show the data
```

Example - Health Data

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Conclusion

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References