

***DO*** vitamins keep the doctor  
away?

...

Victoria M. Ng

# What?

Predict the outcome of  
feeling ill after  
consuming a food,  
drug, or cosmetic  
product

# How?

# Datasets

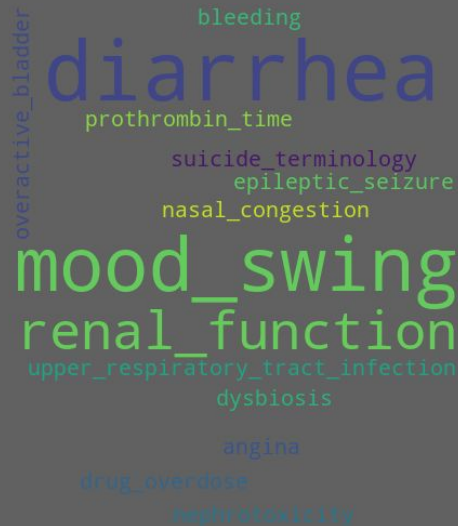
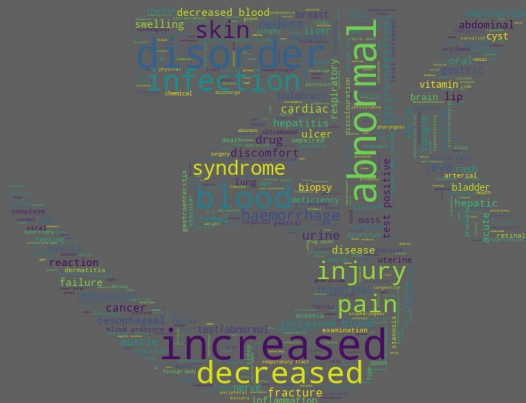
- FDA Adverse Events dataset
- Wikipedia medical symptoms pages

# Why?

# Symptoms Feature Engineering with KNN N=1



WIKIPEDIA  
The Free Encyclopedia



# Ensemble Methodology

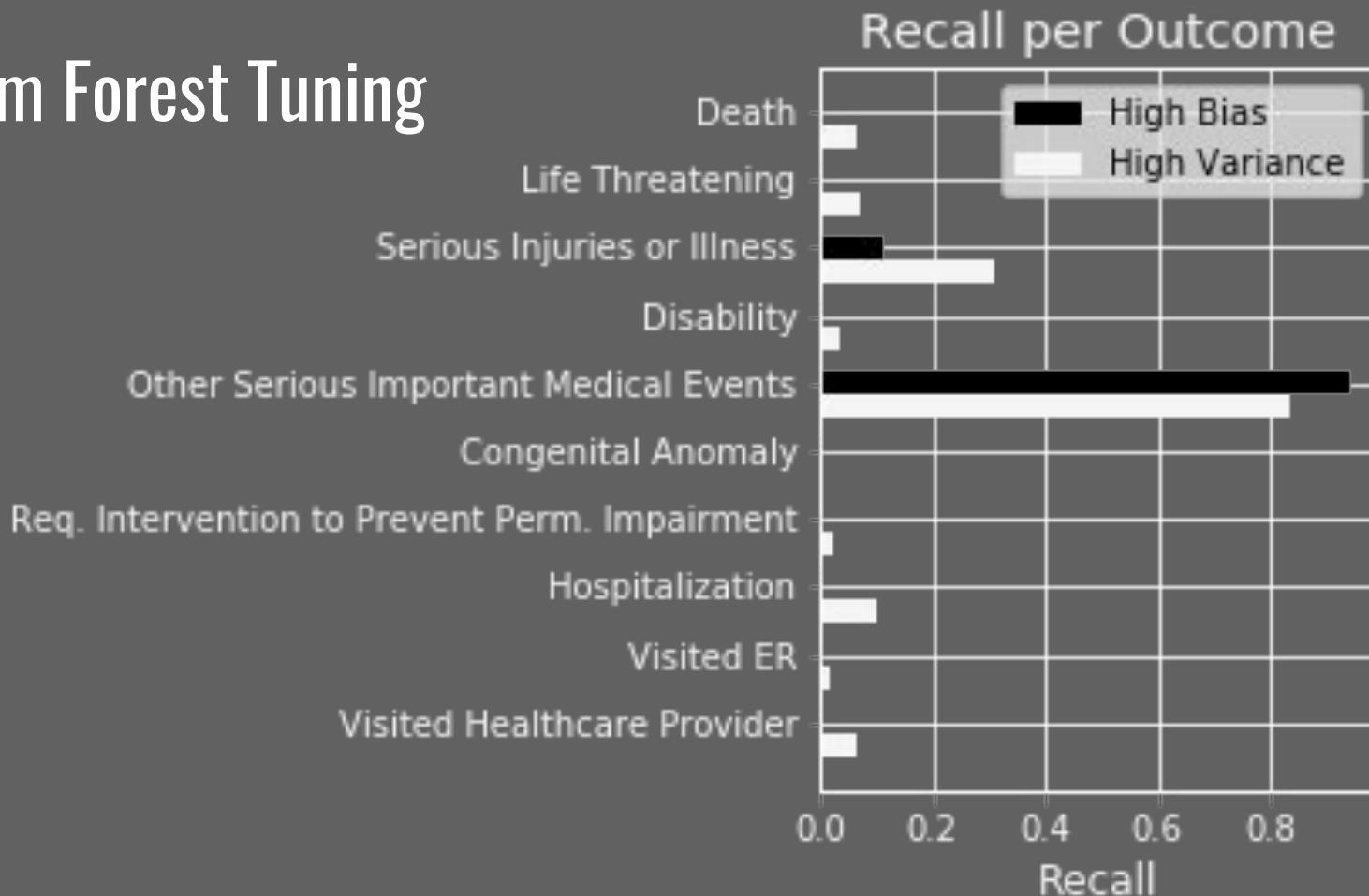


Most features categorical

Random data subsets

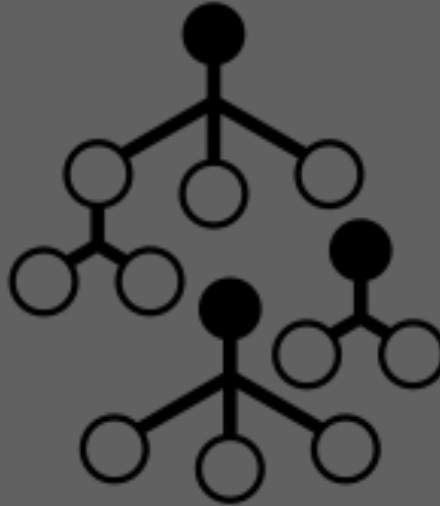
Random feature selection

# Random Forest Tuning



## Parameters

- Max Depth/tree: 17
- Max Features : Sqrt
- # Trees (n\_estimators)  
250



## Features

- 14 Symptom Categories
- Victim Age
- Victim Gender
- Product Industry Code



Demo



# Takeaways

- Age and product industry are most impactful
- Overwhelmingly find more actual serious import medical events than any other outcome

# Looking Forward...

- Layered ensemble method
- Class weighting
- Grouped outcomes
- User friendly

**Stay safe!**