

Predicting Occupation Based on Life Decisions



An agile approach

Danielle Saunders, Galvanize, Nov 2018

What are the strongest hypothetically controllable predictors of an individual's occupation?

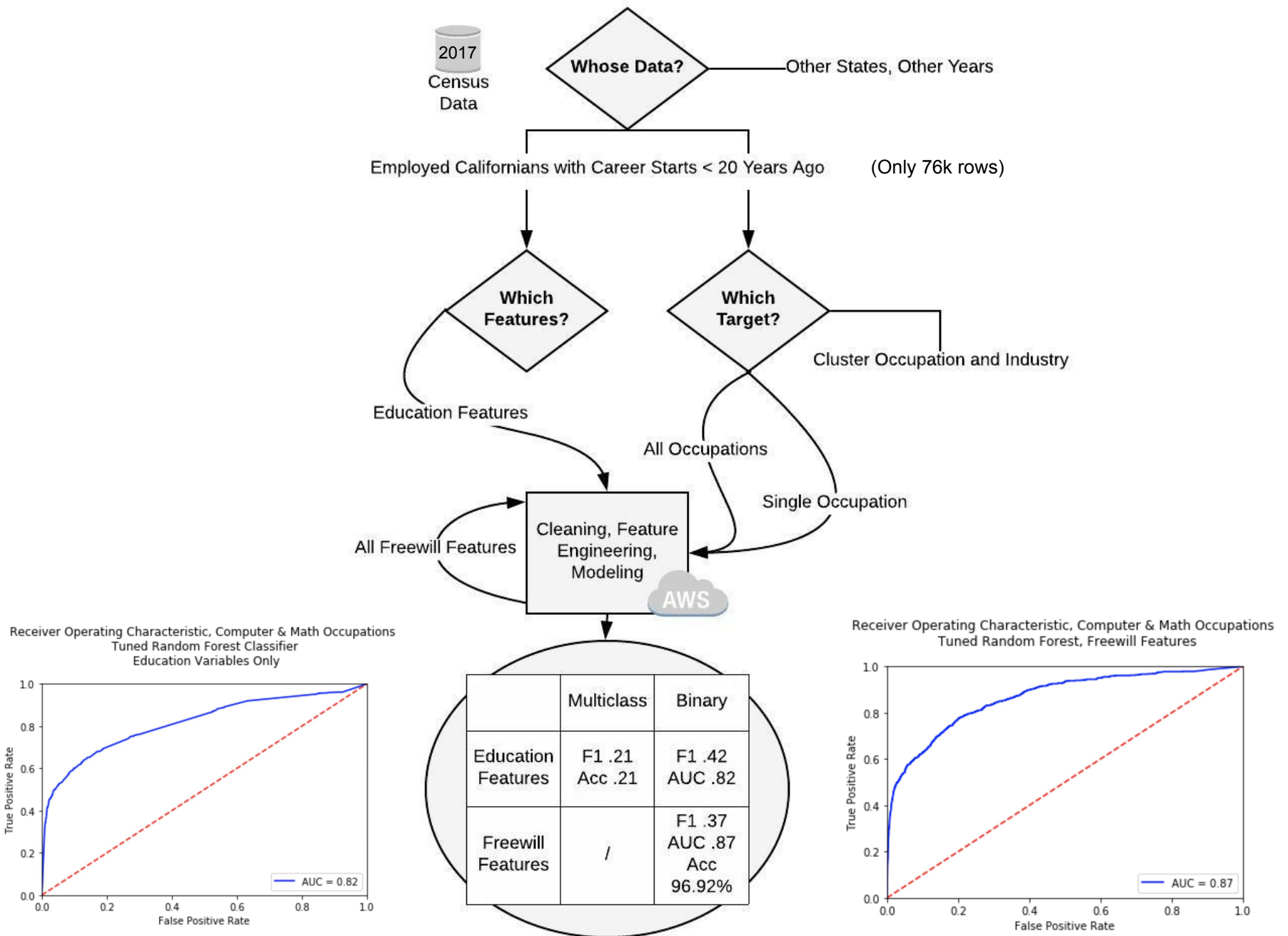
Such as:

- College Major
- Educational Attainment
- Location
- Military Service
- More complex features

Demo Use Case: Computer Science

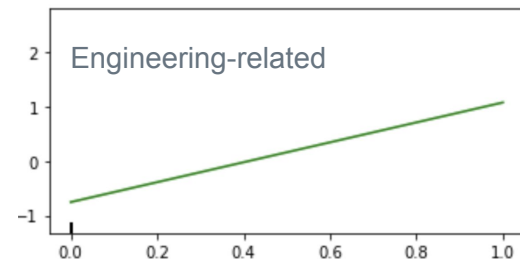
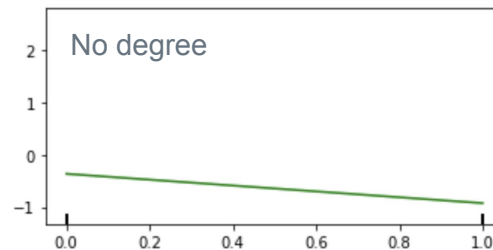
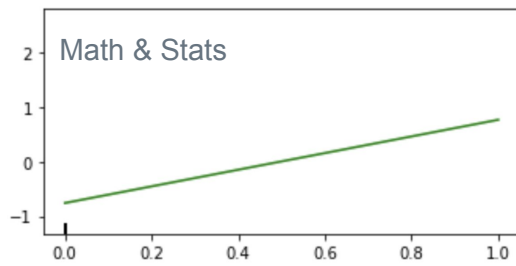
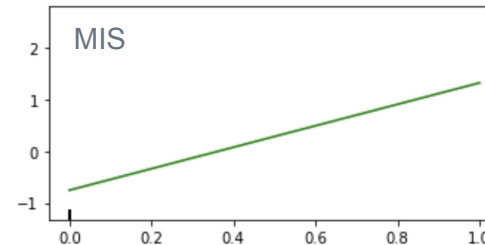
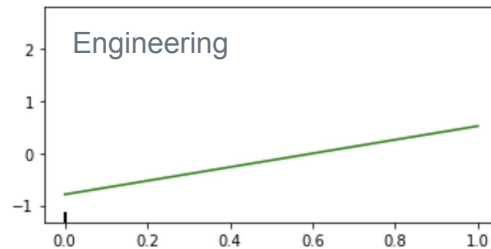
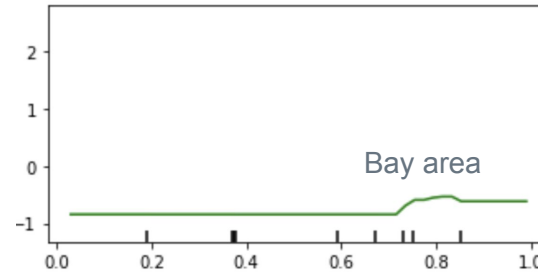
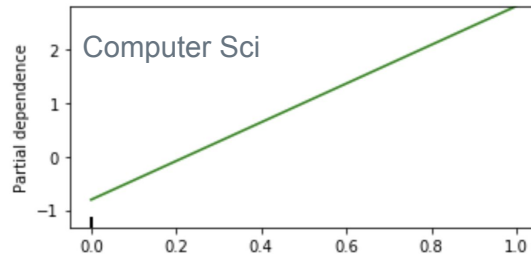


Source: US Census ACS PUMS dataset



Models and Results

- ▷ 8 classification models, 10 CV
 - trees worked best
- ▷ focused on interpretability
 - embedded feature selection



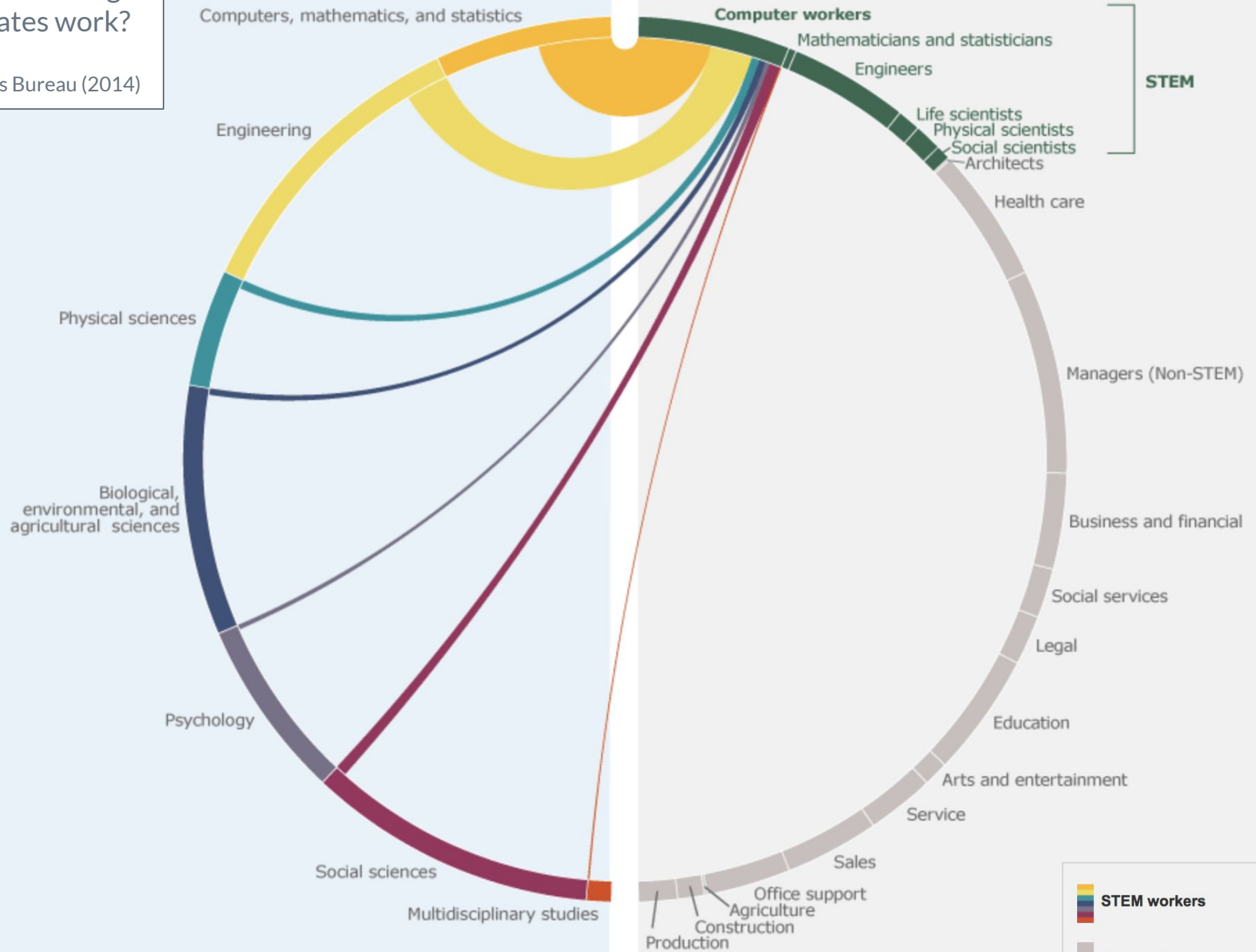
Suggested Paths to Programming

- ▷ CS degree
- ▷ Live in the bay
- ▷ Engineering degree
- ▷ Any degree



Where do college graduates work?

US Census Bureau (2014)



Occupation Predictor

Based on Paths Others Have Taken to Your Goal

Your Desired Profession:

Select

Your Predicted Likelihood
of Being a _____:

62%

About You:

Complete for highest accuracy.

Highest degree or level
of school completed:

Select

Major of your Bachelor's
Degree if you have one:

Select

Major of your second
Bachelor's Degree if you
have one:

Select

State of Residence:

Select

City:

Select

Ability to Speak English:

Select

Demographics
Questions:

You're Most Likely to Be a:

Item 1

Item 2

Item 3

Item 4

Not what you want? We believe you can achieve your goal
no matter what you are likely to be. You will be all the
more incredible for your achievement. To help you get
there, we recommend:

What you can change:

Predict!

Your Likelihood Will
Increase to:

75%

Next Steps

- ▷ expand to useable dataset + 3 to 8 million rows
 - models for other occupations
- ▷ more feature engineering, class balancing
- ▷ look at effect of children on occupation
- ▷ run on all Census features
 - address correlations with demographics



Thanks!

Any questions?

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