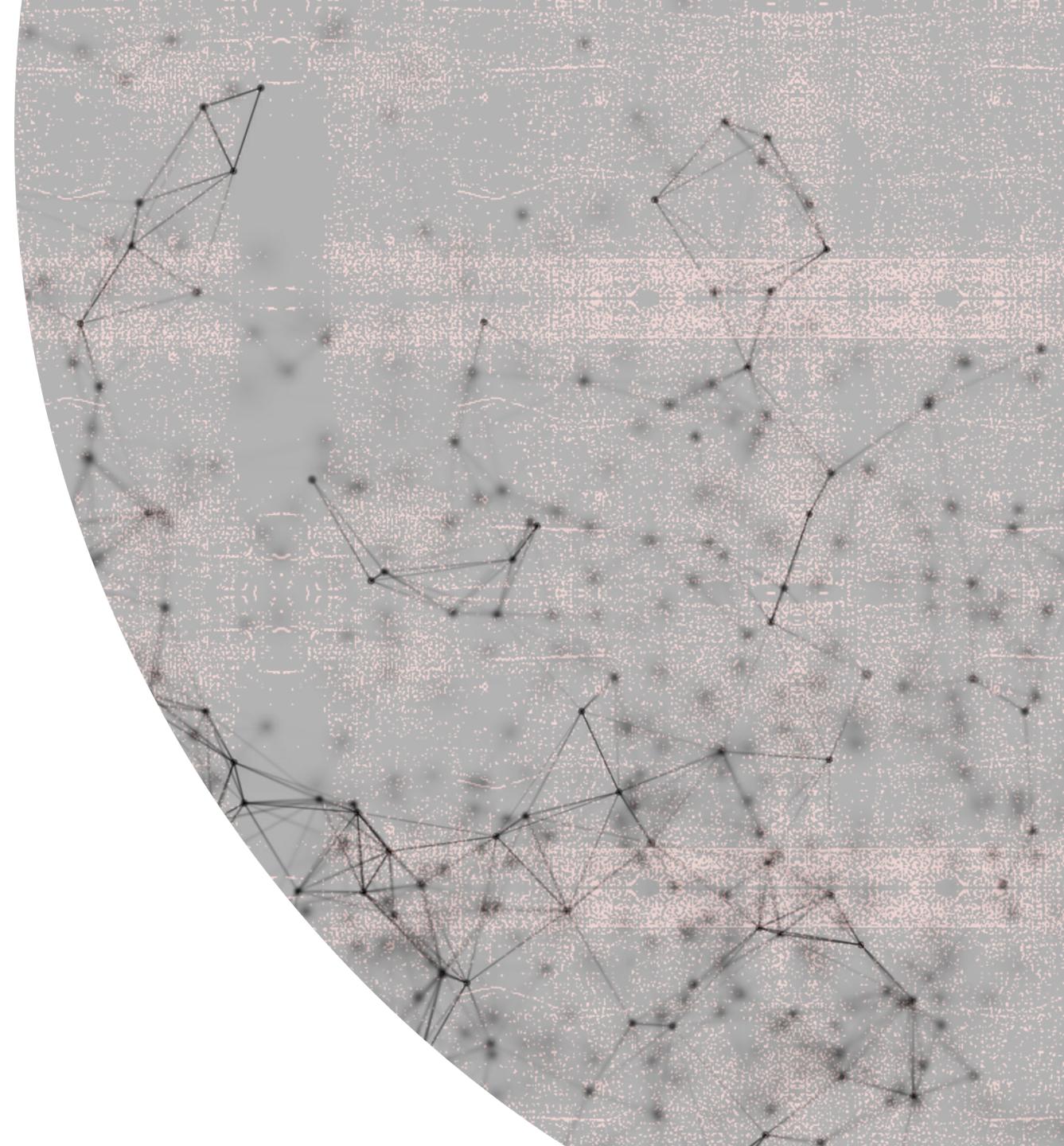


Eric Rodriguez

Presentation for the Johns Hopkins
Center for Mental Health

MENTAL HEALTH VS CORONAVIRUS





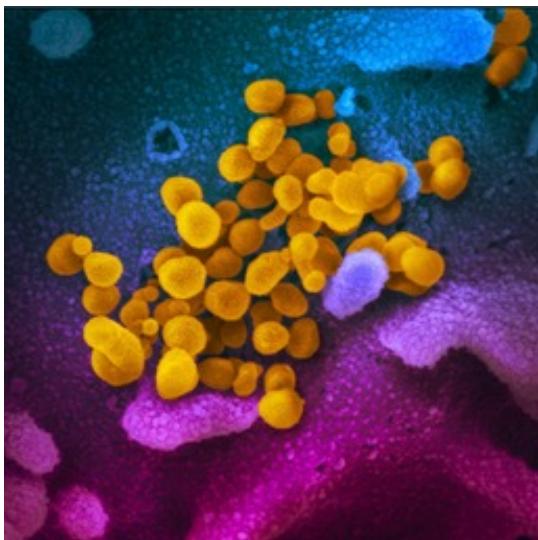
CONTENT

Background

Application

Modeling and
Evaluation

Conclusion and
Recommendations



BACKGROUND

- “Reddit is a **social news** aggregation, web content rating, and **discussion** website”¹
- r/mentalhealth
 - “The central forum to **discuss, vent, support and share** information about mental health, illness and wellness.”²
- r/CoronavirusUS
 - A subreddit that “seeks to **monitor** the spread of the disease COVID-19, declared a pandemic by the WHO.”³



APPLICATION

- **Barriers to mental health care include⁴:**
 - Desire to receive care
 - Lack of anonymity
 - Shortage of mental health professionals
 - Lack of culturally competent care
 - Affordability
 - Transportation
- **r/mentalhealth**
 - Mental health surveillance
 - Platform to point individuals towards resources
- **r/Coronavirus**
 - Covid-19 outbreak surveillance
 - Track and address disinformation/misinformation



MODELS

- Each model was tuned through a pipeline, and was vectorized using TF-IDF

Model	Train Accuracy	Test Accuracy
Logistic Regression	99.8%	92.1%
Decision Tree Classifier	90.3%	89.5%
Bagging Classifier	99.1%	91.6%
Multinomial Naive Bayes	99.3%	90.6%
Adaboost Classifier	91.6%	88.9%
Random Forest Classifier	99.8%	92.5%
Support Vector Classifier	99.5%	91.8%



← r/mentalhealth

r/CoronavirusUS



CONCLUSIONS AND RECOMMENDATIONS

- Accuracy: 92.1%
 - Misclassification rate: 7.9%
- r/mentalhealth metrics:
 - Precision: 93.6%
 - Recall: 90.1%
- F1-score: 92.0%

Logistic Regression Model Confusion Matrix

	Predicted MH	Predicted COVID
True MH	437	48
True COVID	30	467

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