


Weapons of Math Destruction



By Cathy O'Neil

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Cathy O'Neil



- American mathematician, data scientist, and author.
- New York Times best-seller
- Received an PhD at Harvard University
- A professor at Barnard College and MIT
- Dived into finance industry
- Came to Calvin for January Series in 2020. <https://calvin.edu/directory/series/cathy-oneil>

Predictive Mathematical Model

- Model: an abstract representation of some process
 - Takes what we know and predicts our response
 - We are already applying this mathematical modeling
- Baseball game: an ideal home for predictive mathematical modeling
 - Transparency
 - Open access
 - No proxies
- Proxies

Complexity of a Model

- A model's blind spot reflects the judgments and priorities of those who handle it.
 - Biased
- It reflects goals and ideologies
- Is it successful?
 - Racism in modeling

College Ranking

- U.S. News & World Report
- Evaluated 1800 colleges and universities in the United States and ranked them for excellence.
- “Proxies” that seemed to correlate with success
 - Three-quarters of the ranking produced by an algorithm
 - SAT scores
 - Student-teacher ratios
 - Acceptance rates, etc.
- Became a national standard
- Issue: excluded happiness, friendship, and other aspects of 4-year experiences

Online Advertising and Targeting

- Lead Generation
- For-profit colleges
- Target vulnerable population
 - College application questionnaires
- Machine learning reading deeper patterns of users

Credit

- FICO score
 - Relatively transparent, fair, and backed by consistently updated data
- E-scores
 - Aggregate data using zip codes
 - Internet behavior
 - Purchase history
 - Proxies

Recommendation

- Anyone that's interested in finance industry
- Anyone that wants to learn how algorithms brings a huge impact in various industries

Citation

<https://www.canyayinlari.com/cathy-o-neil>