

Algorithmic Greenlining: An Approach to Increase Diversity

Ellen Vitercik

Joint work with



Christian
Borgs



Jennifer
Chayes



Nika
Haghtalab



Adam Tauman
Kalai

Optimizing diversity & quality

Goal: Help practitioner develop selection criteria

- E.g., college admissions, image search, job search
- Should yield **high-quality** and **diverse** results



Challenge: Each criterion's true quality unknown

- E.g., “future success” of admitted college students
- Difficult to optimize for quality **and** diversity
- Decision-maker must rely on heuristics and intuition

Our algorithmic framework

- Expert chooses criterion
 - E.g., job applicant search for “chairman”
- Suggests similar criteria with better diversity
- Relies on:
 - Application-specific criteria similarity function
 - Way to measure diversity of any criterion's results

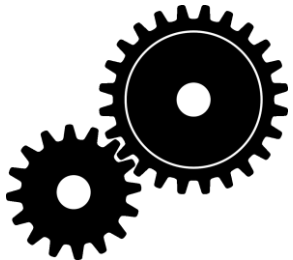
chairman



Tip: if you search for **chairperson**, you'll see 50% more female applicants.

Our algorithmic framework

- Expert chooses criterion
 - E.g., job applicant search for “chairman”
- Suggests similar criteria with better diversity
- Relies on:
 - Application-specific criteria similarity function
 - Way to measure diversity of any criterion's results



**Optimize similarity function
while meeting diversity constraint**

Experiments



College admissions



Image search



Job applicant search

Algorithmic Greenlining: An Approach to Increase Diversity

Ellen Vitercik

Joint work with



Christian
Borgs



Jennifer
Chayes



Nika
Haghtalab



Adam Tauman
Kalai