

Redesigning VolunteerMatch’s Search Algorithm: Toward More Equitable Access to Volunteers

In collaboration with VolunteerMatch (VM)—the world’s largest online platform for connecting volunteers with nonprofits—we designed and implemented a new search algorithm. VM’s original search algorithm was intended to maximize efficiency (i.e., the total number of connections), but as a consequence it repeatedly displayed the same few opportunities at the top of its *display ranking*, effectively limiting access to volunteers for the other opportunities. To incorporate VM’s desire for equity (i.e., the weekly number of opportunities with at least one connection) along with efficiency, we propose *SmartSort*, a simple online display ranking algorithm with a penalty parameter that determines the extent to which each opportunity’s rank is temporarily diminished after each connection. SmartSort is inspired by inventory balancing algorithms and is justified through a formal modeling framework, where we show that an inherent trade-off between equity and efficiency may arise. To manage this trade-off in our implementation, we calibrated the penalty parameter in SmartSort via simulation and piloted SmartSort in VM’s Dallas-Fort Worth marketplace from May through August 2022. Using a difference-in-differences analysis, we found that the implementation of SmartSort led to a 10.2% increase in the weekly average number of opportunities with at least one sign-up without any corresponding decrease in the total number of sign-ups, implying a Pareto improvement for VM. Finer grained analysis and various robustness checks corroborate this aggregate-level result. If SmartSort has a similar effect in VM’s other markets once deployed nationwide, it would lead to an additional 800 opportunities having at least one sign-up every week.

Key words: volunteering, matching markets, online platforms, online experiments, online matching
