

AI tool could increase the number of people exiting homelessness, reduce racial bias in services: Report

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USC researchers have developed an artificial intelligence tool they recommend as one of several measures that would help homeless service

agencies control for potential biases and ensure that applicants have a fair chance at getting housing.

The USC Center for AI in Society (CAIS) on Wednesday released a new [report](#) that details the three-year collaborative research project conducted with the California Policy Lab at UCLA and the Los Angeles Homeless Services Authority (LAHSA). The L.A. agency had sought an analysis and recommendations to improve its triage system amid concerns that implicit racial bias was driving inequity in housing placements and other homeless services.

Black people account for 7.6% of Los Angeles County's overall population, but they represent 31.7% of the estimated 75,000 people in the county experiencing homelessness, based on the [2023 Greater Los Angeles Homeless Count](#). (Data analysis for the annual count is led by USC researchers.)

In the new report, "Coordinated Entry System Triage Tool Research and Refinement," the scientists recommend that LAHSA combine social science expertise with AI to ensure fair and equitable practices in risk assessments and housing placements.

"We've made an important step forward for Los Angeles in addressing the really challenging social problems of racial bias and homelessness, and we've done it in a way that is both technologically innovative and driven by the values of the community," said Eric Rice, a professor at the USC Suzanne Dworak-Peck School of Social Work, co-director of CAIS and the project leader.

"The partnership between [social work](#) and engineering allows us to go beyond the data, to understand the human side behind it, and to create AI solutions tailored to the specific needs of the population," said Phebe Vayanos, a USC Viterbi School of Engineering associate professor, co-

director of CAIS and lead for the USC Data Science and Computerized System Design Team for the project. "Our proposed system is also more transparent, which helps build trust and improve participation."

The CAIS team includes more than a dozen researchers from the USC Suzanne Dworak-Peck School of Social Work and USC Viterbi. Support for the project came from the Conrad N. Hilton Foundation, the Home for Good Funders Collaborative, and the Homeless Policy Research Institute.

CAIS is part of the USC Frontiers of Computing "moonshot" launched by USC President Carol Folt with these key objectives: enhance the university's computing curriculum for students, bolster research that accounts for ethics, and boost recruitment of top scientists and students in such areas as AI and quantum computing. The university aims to advance computer science-driven research and development with a human-centered approach.

Addressing bias through AI development

For feedback, the researchers relied on a community advisory board. The members include people who were once homeless, frontline case managers, and resource "matchers" who allocate housing.

"What we've been trying to do with this process is to help create less bias in the model, but also help create less bias in the way that we collect the data," said Rice, explaining the CAIS team's approach.

The triage tool includes an assessment to gauge the severity of clients' needs and vulnerability. The researchers identified 19 questions that would most accurately predict future adverse events for a client and their likelihood of exiting homelessness. The community [advisory board](#) worked with the researchers to reword these items to be sensitive to the

experiences of trauma and racism common to people experiencing homelessness.

The scientists also recommended guidelines for administering the tool in ways that could reduce client stress during the intake process and increase the probability that housing representatives could capture accurate information about their vulnerability and needs.

The researchers clearly understand the crisis of homelessness, said Marina Genchev, director of systems and planning at LAHSA.

"We may be talking about huge quantities of data and where AI or prediction can come into play, but it is never a pure science exercise. It is always a human exercise using data," she said.

Two models to inform housing decisions

The researchers developed two data systems models that can be adjusted to fulfill different needs. The California Policy Lab team developed a data prediction model linking existing administrative data from touchpoints throughout the County of Los Angeles to predict future adverse outcomes and escalate those clients' priority for available housing resources.

For their model, the CAIS researchers aimed to address overall homelessness by improving equity across all groups to successfully exit homelessness. In testing, this model improved the fairness, efficiency, and transparency of the system all at the same time.

It gave stakeholders a way to implement their preferences in terms of what the system should be doing. At the same time, it increased the number of individuals able to successfully exit homelessness by 3%, reducing overall homelessness over time, Vayanos said.

Rice and Vayanos are developing similar models for homeless services in Missouri and Washington. Vayanos also made a Python software package for social service agencies, and she is finalizing another that allows [local communities](#) to adapt the researchers' models to their needs.

"We have a long way to go to solve homelessness," Rice said. "But we're doing something to make for a more equitable, fair, and community-driven process that will help to serve people experiencing homelessness—no matter who they are—in a more thoughtful and meaningful way."

More information: Report: dworakpeck.usc.edu/sites/default/files/2023-11/CESTRR%20Final%20Report%202023.pdf

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