Researchers develop tool to help people use color better in graphic design

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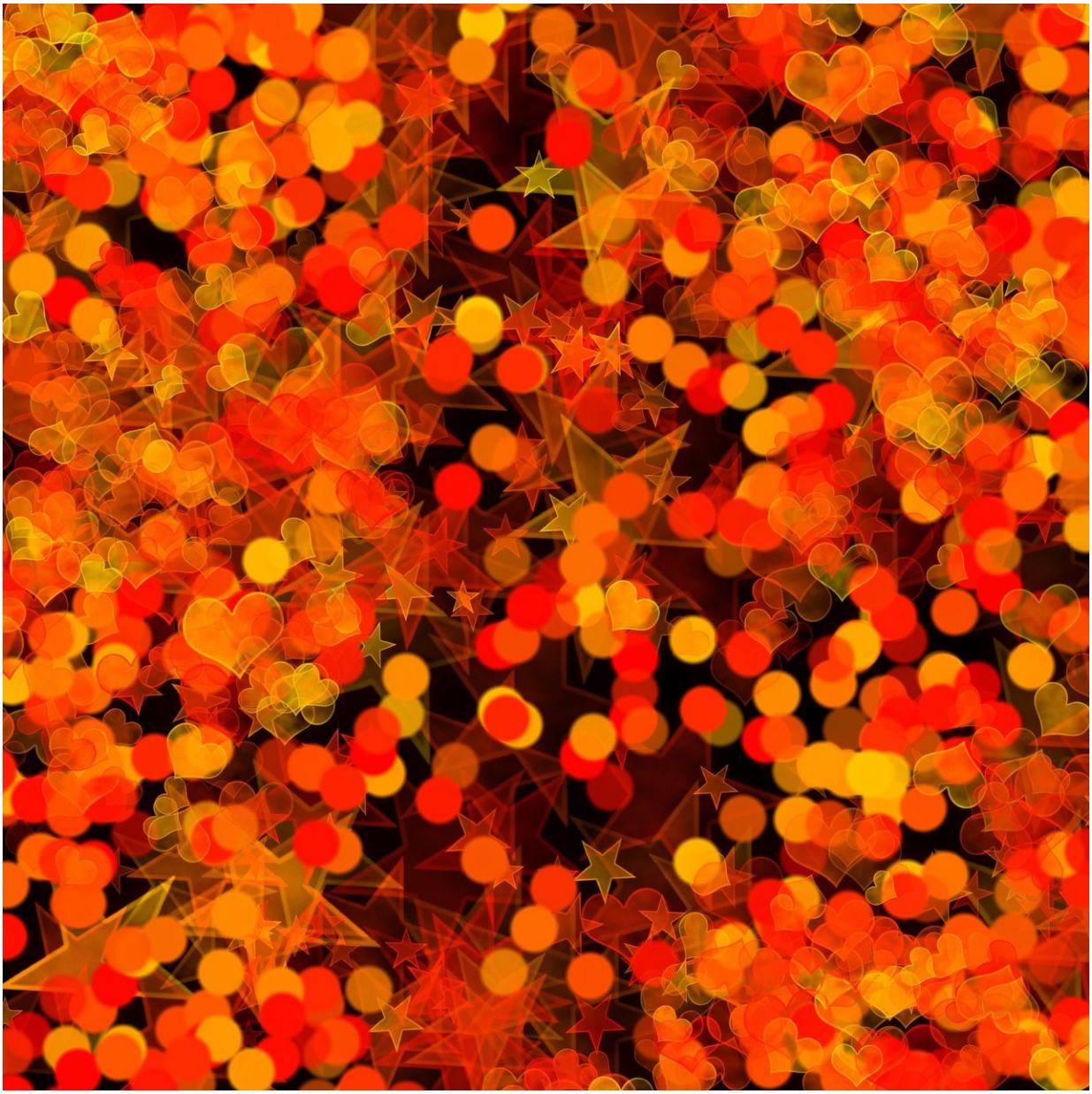

A team of computer scientists and designers based out of the University of Waterloo have developed a tool to help people use color better in graphic design. The research paper, "Facilitating Graphics Design with Interactive 2D Color Palette Recommendation," was published in *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems* (CHI '23), April 23-28, Hamburg, Germany.

The tool, De-Stijl, uses powerful machine learning technology to suggest intuitive color palettes for novice designers and inexperienced users. The software combines and improves on the functionalities of existing tools like Figma, Pixlr, and Coolor, allowing users to select important theme colors and quickly visualize how they'll impact a design.

"You put your graphical elements into the canvas," said Jian Zhao, an assistant professor of computer science at Waterloo. "De-Stijl separates it into background, image, decoration and text, and based on these it creates a palette and then can make recommendations based on the design elements of layout, color proximity, and proportion."

De-Stijl's most exciting contribution is an innovative 2D color palette, developed in consultation with expert graphic designers, that not only suggests colors but also demonstrates their impact in different distributions.

"Humans perceive colors differently based on their proportion and their placement," said Xinyu Shi, a Ph.D. student in computer science and the lead author on the research. "With the 2D format, users can better perceive how their current graphic designs look, focusing on the color itself."

The Waterloo-led project grew out of a longstanding relationship with Adobe, the design powerhouse responsible for products like Photoshop and InDesign.

Adobe realized that a lot of people responsible for creating branding and other marketing materials didn't have advanced graphic design knowledge or the resources to hire expert designers. They tasked the Waterloo team with helping them find AI-powered solutions for these novice designers.

The De-Stijl team worked with a combination of design experts and ordinary users to build and test the software. During the testing phase, users customized marketing materials from provided templates using both De-Stijl and its competitors.

"No one tool can do the work that De-Stijl can do," Zhao, said. "So we compared it to a suite of tools as a baseline."

In anonymous expert assessments, De-Stijl outperformed the competition in usability, customization and attractiveness of design.

Shi emphasized that De-Stijl is not meant to replace expert graphic designers or human creativity. Rather, they want to remove some of the tedious guesswork from graphic design.

"Our aim is to facilitate, not replace," Shi said.

More information: Xinyu Shi et al, De-Stijl: Facilitating Graphics Design with Interactive 2D Color Palette Recommendation, *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems* (2023). DOI: 10.1145/3544548.3581070