Eye Tracking Architecture: A Pilot Study of Buildings in Boston

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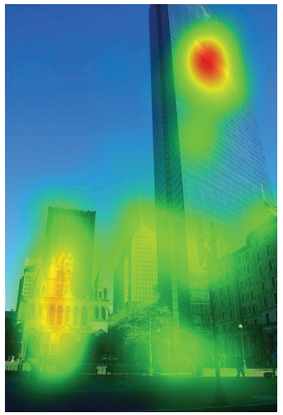
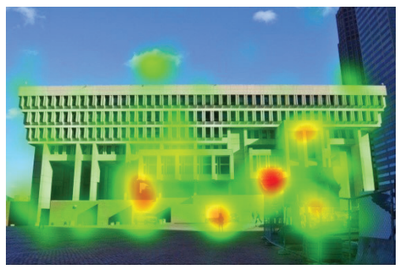
I. EXTENDED ABSTRACT



We performed this study to better understand how people see their world and answer a key question: would eye tracking, a method used in cognitive science, be a useful addition to an architect's toolkit? What might it tell practitioners and students that is otherwise overlooked? How easy is it to do?

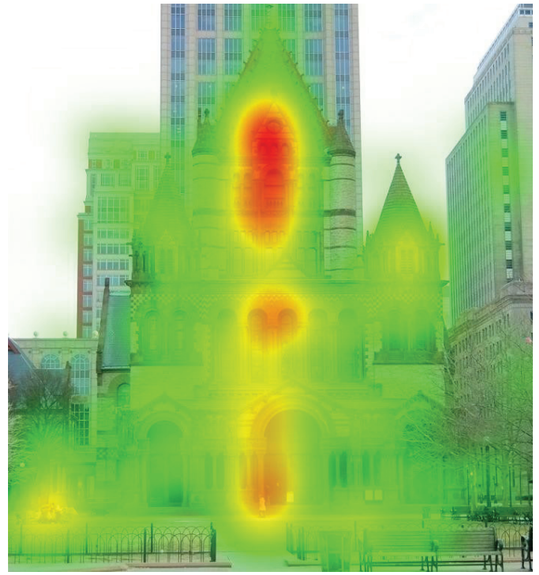
In a collaboration between architecture, interior design, and cognitive science, we conducted an eye tracking study at the Institute for Human Centered Design, a non-profit in Boston. Our thirty-three volunteer viewers, ages 18 to 80 and from various occupations, looked at 60 images on a computer screen for 15 seconds each. Half of the images were photos or renderings of Boston buildings, interiors and exteriors. Remaining images included faces and landscapes. We tracked volunteers' eye motions using an off-the-shelf Eye Tribe eye tracker and iMotions analysis software. Our aggregated data created compelling graphic representations: heat maps and spotlight images which revealed common looking patterns, and videos of individual gaze paths. Other metrics recorded included "Time To First Focus" on an element, and "Revisits": the number of times volunteers looked at the same area.

Results showed how astonishingly human-centric our perception is; no matter the building, viewers tended to seek out people and faces first and focus on them if present. Even architectural renderings with shadow figures of people were viewed differently from those without.



Observations also suggested that each of us looks at the world uniquely, and indicated differences between the way designers and non-designers take in architecture. Similarly, some buildings generated nearly identical looking patterns for all viewers, whereas other buildings did not.

Eye tracking, we found is a fantastic tool for understanding visual aspects of our experience. Our observations reveal potential for more research and applications. Architects can use eye tracking to see through the eyes of non-architects. Communication of design to the public, scholars, students, and clients, can benefit from knowing how viewers look at images and renderings of buildings, for example with and without people. Insights about perception of architecture
can also inform teaching of architecture design, theory, history, and criticism.



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3. AUTHOR BIO

Ann Sussman has a long-standing passion for understanding how we connect to the built environment and how buildings influence our bodies, brains, how we think, and even what we think about. An architect, she co-authored Cognitive Architecture, Designing for How We Respond to the Built Environment with Justin B. Hollander.

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