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Augmented Decision-Making Through The P[AR]k: Hybridizing Performance Metrics for User Evaluation

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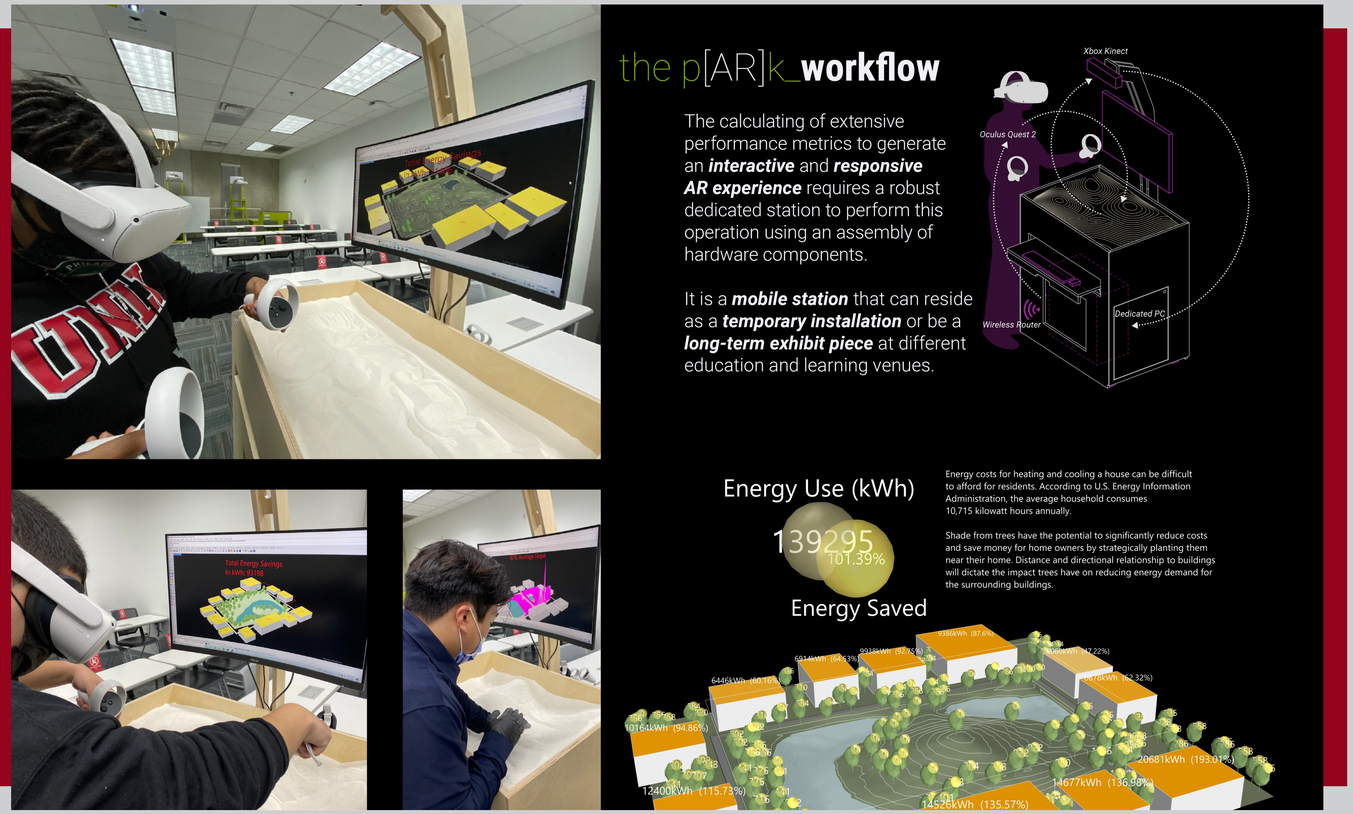
AUGMENTED DECISION-MAKING THROUGH THE P[AR]K

Hybridizing Performance Metrics for User Evaluation

► **PHILLIP ZAWARUS, MSLA** // LANDSCAPE ARCHITECTURE



Undergraduate landscape architecture students testing a new design methodology.

► ABOUT THE AUTHOR

Phillip Zawarus provides knowledge and expertise in the field of landscape architecture analysis, synthesis, and design through performative metrics and dynamic visualizations of qualitative and quantitative information. Zawarus uses advanced computational modeling and fabrication methods to evaluate and visualize desert ecosystem services for strategic development and communication of social and environmental design. He integrates research, design, and visual communication of complex ecological systems within the built environment to develop responsive approaches for sensitive arid conditions in the Mojave Desert.

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► PROJECT DESCRIPTION

Nature-based solutions are being further appreciated beyond their aesthetics and are being recognized for their ability to sustain, mitigate, and service the sensible ecological preservation and enhancement of the natural and built environments (Beck, 2015). For the profession of landscape architecture to properly evaluate these necessary design tactics, our process must shift to a divergent method of asking questions to direct solutions through evidence-based decision-making (Lahaie, 2016).

Through the emergence of landscape performance and the integration of quantitative metrics into outdoor spaces, technology and innovate methods can begin to communicate nature-based benefits as tangible outcomes to comprehend the complex ecological, social, and economic relationships of our complex environments. My approach models these dynamic landscape benefits using an Augmented Reality (AR) platform of both physical demonstration pieces and digital interfaces to reach a universal audience. Augmented reality is not only gaining traction as an innovative representation tool but with the integration of parametric modeling and performance metrics it can also serve as a decision-making tool (Duenser et al., 2008) to the design process. Students, community members, and stakeholder groups can rapidly generate scenarios that align with program objectives that relate to social, economic, and environmental benefits for measurable outcomes. With the augmented interface, information and data becomes perceptual and responsive to real-time change, performance parameters, and user decision making. With the influx of real-time quantitative data that updates during this process, there is a profound opportunity to fundamentally shift design thinking and action based on these augmented outcomes. By embedding measurables and metrics to this workflow, a new design process and methodology can potentially emerge that enables the respective parties to generate robust design strategies for evaluation against their specific goals and objectives.

This approach uses a mobile AR station serving as a digital gameboard, demonstrating varies examples of landscape performance to create a “discovery exhibit” for K-12 students, college campus groups, and the surrounding community. The advanced augmented sandbox can be calibrated to communicate basic landform characteristics of elevations and slopes to advanced performance metrics of tree benefits, stormwater management, and erosion control. The gameboard scenarios can be developed, monitored, and evaluated with the digital tracking of user engagements to cross-reference with surveys to evaluate the effectiveness and friendliness of the interface and intended learning outcomes. This mixed reality provides an opportunity to evaluate whether data outputs impact or influence design decision-making by the user from the survey forms (Wang et al., 2013)..

► REFERENCES & ACKNOWLEDGEMENTS

Beck, Travis, and Carol Franklin. Principles of Ecological Landscape Design. Island Press, 2015.

Duenser, Andreas, Raphael Grasset, and Mark Billinghurst. (2008). A Survey of Evaluation Techniques Used in Augmented Reality Studies. ACM SIGGRAPH ASIA 2008 .... 10.1145/1508044.1508049.