

The TAMU Community for Human Scale Synesthetic Perception and Innovation

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Key Participating units: Institute for Applied Creativity, International Ocean Discovery Program, Department of Visualization

Anticipated Request Amount: \$2,500,000.

Executive summary

The revolution in 3D visualization, printing, and manufacturing is already touching people in areas of scientific and technological advancement, business, food, medicine, artistic creativity and entertainment, construction, parks and recreation, and other psycho-social experiences. This presents a great opportunity for those in the TAMU community who are already using or innovating with visualization and printing technology to congregate into a focal-point center to maximize cross-pollination of ideas, for expanding applications, furthering technological development, and providing services to the broader TAMU campus, in the fields of science, engineering, agriculture, architecture and construction science, food, art, music and other social components of human community life. Current technology allows nature, from the atomic and microscopic to planetary and galactic scales, to be visualized (3D on flat screen, immersive and holographic setups) and recreated in solid print form at human scales (hand-sized, body-size, and room size) for the purposes of education, further research and inquiry into nature, and experience. Visualization offers knowledge primarily through the sense of sight, whereas solid replicas and objects add knowledge through the additional senses of touch and taste, as well as to a lesser degree our senses of balance and proprioception. Thus persons lacking sight can now begin to explore and understand nature at many scales, and engage in creativity without reliance on sight. Eventually this revolution will allow persons to also experience, learn and create using their senses of smell and sound (e.g., pheromones as trail markers for ants, the sound of the "ocean" within a gastropod sea shell). Human scale replicas of nature will be investigated by humans, for example by using echolocation as with bats, and magnetism as with homing pigeons. Ultimately technology should be able to create artificial, partial or complete synesthetic experiences and explorations of our world and universe, that until now only a rare number of individuals are able to do. The National Science Foundation, among other funding agencies, already recognizes the importance of integration of sciences and engineering with art and design (SEAD) and balanced social education through STEAM (Science, Technology, Engineering, Art and Mathematics). The ultimate aim of these funded programs can be realized at TAMU in an expansive way through creating a nexus of multidimensional and multi sensory talent and expertise within an environment that maximizes creativity using these cutting edge technologies to provide community service that enhances our local cultural experiences, as well as to act as a seed for further research and development in integrated multi-dimensional, synesthetic human learning. A Center for such a TAMU Community must be designed first not by a few individuals but through a few brain-storming conferences (50-100 persons maximum each) of TAMU employees that will generate a number of different sub-proposals that will act as examples of synesthetic research and application. Through initial RDF funding of the conferences and those sub-proposals that are reviewed and deemed most promising to carry through on this vision, the TAMU Community for Human-Scale Synesthetic Perception and Innovation will solidify into a physical group of persons who, located together (e.g., as in the TAMU Microscope and Imaging Center), will lead it and enlarge it dynamically into a self-sustaining resource for the university, local community, and state. Industrial models of such a community include companies such as Apple, Inc., Google, Inc., Microsoft, Inc., and others.