



The History of 3M VAS

3M Visual Attention Service and Vision Science

3M Visual Attention Service was built from 3M's vision science research. 3M began working in vision science to support improvements in reflective materials. In the early 1940s, 3M began providing reflective sheeting for highway markings. With improvements in materials and increased knowledge in light management, 3M scientists have developed a wealth of understanding of how to control the reflectivity of light. One area where this has particular impact is in highway work zone products. A work zone requires many reflective products including garments for workers, pavement markings, sheeting for signs and barricades, all designed to clearly identify potentially dangerous situations and help make work zones safer both day and night.

3M developers began working to improve the safety of work zones using 3M reflective materials to improve overall reflectivity or brightness. While these improvements increased overall visibility, the 3M team wanted to identify ways to provide even greater safety of highway workers and in the overall work zone. The question was if people do not respond to brighter, what will they respond to? To better understand what people were most likely to look at in the first few seconds, the 3M team began investigating how the human visual system works. Their goal was to improve safety through increased visibility, but questions remained: How do we as humans see? What do we see? And, how can understanding the visual system be leveraged to improve visibility and, therefore, safety.

The team of Vision Scientists in 3M's Corporate Research Lab began building sophisticated neural network models to predict what people would see in the few seconds when someone enters a work zone or any other new environment. This modeling then guided the development of new patterns and reflectors to improve visibility based on how the human brain processes images to ensure that viewers will see the most important areas immediately.

This technology developed to protect lives has now been applied to understanding the viewability of an ad or design. The team of 3M vision scientists and programmers then modified the model and developed an application with an interface to enable users to upload an image, process it and get the output of where people would look in the first 3 to 5 seconds in an environment or image. This tool called, 3M VAS, adds objectivity to any visual design process.