



# RESEARCH2REALITY

Shining a light on research & innovation.

## Into Sight, Into Mind With These Cutting-Edge Tools

An Interview with researchers at York University's **Vision: Science to Applications (VISTA)** program

**Doug Crawford**, Neuroscientist, Scientific Director at VISTA

**James Elder**, Human/Computer Vision Scientist at VISTA

**Jennifer Steeves**, Vision Neuroscientist, Neuroscientist at VISTA

### Doug Crawford

VISTA stands for Vision: Science to Applications and as the name implies, we're really interested in vision research and how we can bring that to real-world applications. One of the reasons that we can do such advanced research here at York University is the incredible facilities that we've built up for vision research.

### James Elder

Within VISTA we have access to a range of technologies to support both science and engineering. So we have, for example, state-of-the-art behavioural science facilities, including eye tracking and very special display systems. On the computational side we have access to the shop facilities and the expertise to build very specialized camera systems and computational systems for our applications.



### **Jennifer Steeves**

We are really fortunate here, in that we have a 3T-MRI system in the very building that I have my own laboratory. That actually has allowed us to do some really novel brain stimulation because we can take my entire brain stimulation suite over to the MRI and look at real-time effects of brain stimulation.

### **Doug Crawford**

The other resource that we have here is incredible virtual reality equipment, so that one can present visual stimuli in an immersive environment. These kinds of environments, as we translate them to hospital settings or training settings, are going to have a number of different applications in healthcare, industry and education.

Of course, our focus is on vision, but vision doesn't work alone. It works with other senses, like the sense of balance, hearing and so on, and one of the places that that becomes disrupted is in space, where the gravity is no longer the same. So the experiments that we design here at VISTA, we can repeat in space and use those to test why it is that astronauts become disoriented, dizzy, and in some cases even sick.

One thing that's important to us, we're receiving funds from the Canadian taxpayer — and it's our responsibility to bring our research back to benefit those taxpayers, make sure that we improve the quality of their life.