



RESEARCH2REALITY

Shining a light on research & innovation.

Seeing Isn't Just Believing, It's Understanding

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

Niko Troje, Vision Scientist, York University

Joel Zylberberg, Computational Neuroscientist, York University

Jennifer Steeves, Vision Neuroscientist, York University

James Elder, Human/Computer Vision Scientist, York University

Niko Troje

Human vision requires input from all sorts of different areas. We need psychologists who really understand not just the physiology of, and the neuroscience of the brain, but really what happens in the perceiving mind. But on the other hand we need engineers and computer science colleagues to implement the models that we develop about how the brain is processing complex information, such as objects or faces or whole people.

Joel Zylberberg

The project where we're trying to use the brain as a teacher for AI systems really came about from a conversation with myself and my collaborator on this, Alona Fyshe at UAlberta, and we were sort of joking a little bit about what would happen if you could actually upload expertise from a person directly into a machine. And that's been really fun sort of chasing that — the sort of imagination towards actually making something work.



Jennifer Steeves

I have a VISTA grant with Lauren Sergio which has allowed us to look at sex differences in visual processing. It turns out that females tend to outperform males at face recognition, and so our goal is to look at these known structures in the brain that process faces, and where mental rotation is performed, to see if there are differences in brain activation that reflect the behaviour that we've observed in the laboratory.

James Elder

At the VISTA Innovation Symposium that was held about two years ago, we were lucky to meet a company called Crosswind Incorporated that makes social robots, basically robots on a human scale that can work with humans. When the pandemic hit we started talking about how that would be useful, and then that led to the concept of those robots actually being able to disinfect areas — which first of all is kind of a tedious task, but secondly it's somewhat of a hazardous task so it's a perfect task for robots to perform rather than humans. So all of these things are critical, you really have to bring all these levels of support together into a single ecosystem.