



RESEARCH2REALITY

Shining a light on research & innovation.

Repairing the Most Complex Network Of All

An interview with:

Professor Gary Bader | Computer Scientist, Medicine by Design, University of Toronto

Professor Freda Miller | Neuroscientist, Hospital for Sick Children, Medicine by Design, University of Toronto

Gary Bader: Medicine by Design is highly collaborative. We need that collaboration because of the major goal that we're working towards. So if we're trying to build new devices out of biomaterials, we need a lot of different people to come together. We need biologists who understand the biology; we need engineers who understand how to design and build things; we need computer scientists like myself to try and understand how to put all of the data together and model things on the computer so that we can work more efficiently.

Freda Miller: I would, sort of, fall in the, sort of, middle of the spectrum of kinds of scientists you would have in Medicine by Design. I'm not a computational biologist. And the really exciting thing to me is that I'm collaborating with people who honestly do things that I would have thought were sci-fi, if I wasn't actually part of them. And not only is that incredibly exciting, having these like very computer oriented people thinking and talking to me and helping me do research, but I think a really key thing that I want to highlight, is that it's allowing me to have people in my lab who are doing both things. So it's the next generation, right. These are not, they're not going to be clones of me or clones of Gary Bader; they're going to be the fusion of the two of us – sort of our new child – who will be able to do what both of us do.

Gary Bader: Collaboration is vital. For instance, as computer scientists, we don't actually look at the biological systems directly that we're studying. We're collecting information from other people, and are completely dependent on all of that information coming in from biologists all over the world. And we pull all that information together into our supercomputers, here in Toronto, and build our models.

