



# THE ADVENT OF ETHICAL ROBOTICS

By Jason Winders, MES'10

## Alumna is helping shape the ‘humans behind the robots’

**Ai** mee van Wynsberghe brings a little humanity to cold, cold code. The

University of Twente (Netherlands) Philosophy of Technology professor stands at the forefront of developing ethical standards for creators of the next generation of artificial intelligence that will live, work and play among us. She works in concert with academics, industry professionals, engineers, even sci-fi writers, to shape the “humans behind the robots.”

“We don’t want to stifle innovation – we think it is necessary, however, that we work together to pave the way for robotics to enter society in a responsible manner,” said van Wynsberghe, BSc’06 (Cell Biology), who along with Noel Sharkey, robotics professor at the University of Sheffield, created the Foundation for Responsible Robotics. “There is nothing to help guide researchers and developers, as well as help protect users. It is really a free-for-all at this point. It is kind of scary.”

As artificial intelligence becomes more common in operating rooms, personal vehicles, even children’s toys, van Wynsberghe and her group are exploring ways to tame a feral development environment. Their efforts come none too soon for a world on the brink of massive change.

“We are not talking about a science-fiction technology any more. We are not talking about in 20 years we are going to have this or that kind of robot,” she explained. “In the next 20 years, we are going to have very sophisticated robots in our homes, our shopping malls, greeting us as we enter stores. Already, we have the first prototypes of those robots. They are here now – we want to make sure the right questions are being asked before it is too late.”

While technology is still decades away from instilling ethical protocols directly into robots, everything behind the scenes is up for discussion – codes of ethics for engineers who design the robots, standards for companies to abide by in terms of materials and marketing, even ownership of the data collected by the robot living with you. The intimate details these machines gather from our lives, and the intimate spaces they find themselves in, make the job imperative.

“It is widely recognized that there will be negative side effects to the use of these robots. That doesn’t come as a surprise to anyone,” van Wynsberghe said. “What is surprising is that there is no money to study these issues, no pathway for collaboration between academics and companies. We found that surprising. It is not a good way of going about doing things”

Initially, the London native headed to Sheridan College to study Musical Theatre. But her time on the stage was fleeting. “As much as I loved it, and as much as I loved the energy and enthusiasm of that life, I wanted more intellectual stimulation,” she said.

That desire led her to study Cell Biology at Western with eyes on medical school. During her second year, she toured the newly opened Canadian Surgical Technologies & Advanced Robotics (CSTAR). At that moment, a connection was made.

Opened in 2000, CSTAR is the only Canadian training centre for the da Vinci Surgical System, and has produced a number of Canadian and world firsts in computer-assisted, minimally invasive and robotic surgery. Intrigued, van Wynsberghe joined CSTAR as one of its first research assistants.

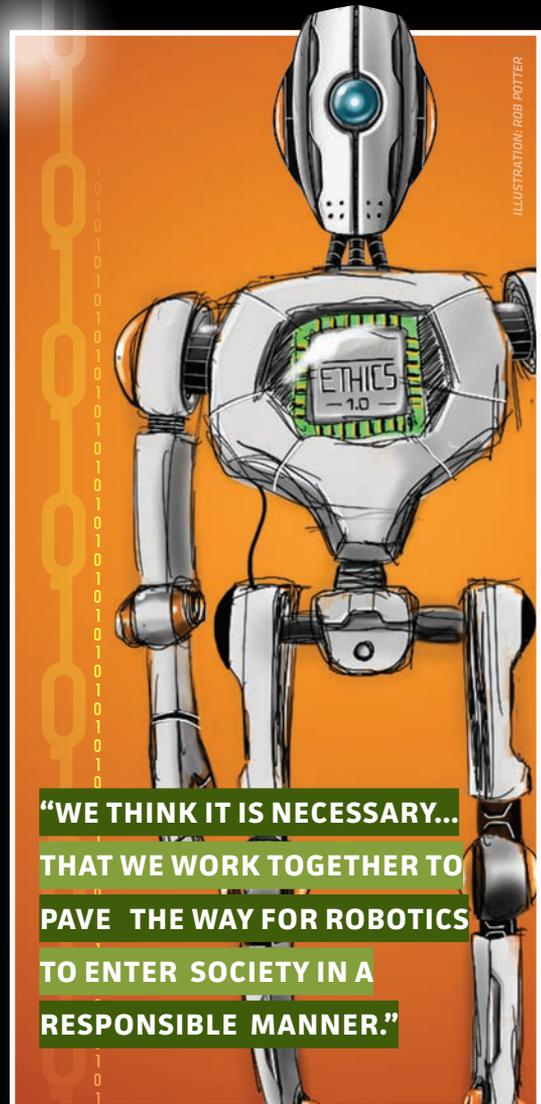
“They gave me a shot. And it was my first insight into robotics,” said van Wynsberghe, who continued her work there for three summers. “It was exciting to be there at the very beginning.”

She credits Surgery professor Dr. Christopher Schlachta, CSTAR Medical Director, with being the constant voice pushing her “to ask better questions and think deeper about why I was doing the research I was doing.”

That led her to question how a surgeon felt about using “this huge robot” in the surgical suite, and how a patient felt about allowing this technology in, she continued. Schlachta encouraged her to follow these ethical questions further. She did just that.

At the University of Twente, van Wynsberghe pursued her graduate work in applied ethics in the design and analysis of robots, especially as it relates to health care. She was among the world’s first researchers to explore the ethical issues surrounding surgical robots. Her PhD thesis, *Designing Care Robots with Care: Creating an Ethical Framework for the Future Design and Implementation of Care Robots*, was nominated for the Georges Giralt Award for Best PhD Thesis in Robotics in Europe.

She recently released her first book on the issue, *Healthcare Robots: Ethics, Design and Implementation*, and has published numerous peer-reviewed articles in academic journals. Last year, she was awarded an



Innovational Research Incentives Scheme Veni Grant to study the ethical issues of service robots and was named one of the 400 most successful women in the Netherlands under 38.

“And it was all because of the conversations I had with Dr. Schlachta and the incredible, once-in-a-lifetime opportunities I had at CSTAR,” she said.

van Wynsberghe stressed her work is about raising public awareness of the issues surrounding artificial intelligence; the burden of demanding responsibility within the industry will be on the back of consumers who demand it.

“The technology is still at this early, early stage. That is the most exciting part about it,” she said. “If we can ask the right questions, and come up with even preliminary answers, we have a chance of shaping how the technology is going to benefit society. We would like to show that these considerations shouldn’t necessarily be a choice.” **WAG**