Artificial intelligence (AI) is a transformative business platform and area of significant investment in the world economy. The global market for smart machines (neurocomputers, autonomous robots and vehicles, smart embedded systems, intelligent assistance systems) is anticipated to grow to $15 billion annually by 2021. By 2030, the global economic impact of AI is expected to be approximately $15.7 trillion. AI, especially in the areas of machine and deep learning, is expected to become embedded in virtually every industry. The Toronto ecosystem is a hotspot for AI, powered by world-class research, the greatest presence of tech jobs in Canada across all sectors of the economy, and a growing number of tech startups. In 2017, Thomson Reuters’ Toronto Technology Centre established a new long-term facility, with a commitment totaling more than USD$100 million. In 2018, Fujitsu, NVIDIA, Samsung Research America (SRA), Etsy, and LG Electronics announced they are establishing state-of-the-art AI centres in Toronto, joining other multinational companies like Google and Uber.

For more than 30 years, U of T researchers have been at the forefront of advancing AI in such areas as computer vision, computational linguistics and natural language processing, knowledge representation and reasoning, cognitive robotics, and machine learning. Geoffrey Hinton, a father of artificial neural networks and deep learning, founded the U of T Machine Learning Group in 1985, which is now home to many international leaders in the field, including Brendan Frey and Radford Neal. U of T scholars are also leading important industry initiatives. Raquel Urtasun, an expert in machine learning and self-driving cars, leads Uber’s Advanced Technologies Group in Toronto. Sven Dickinson is leading Samsung’s new Toronto-based AI centre, which will undertake an interdisciplinary approach to solving AI problems, from computer vision to computational linguistics and cognitive science. The Rotman School of Management runs the Creative Destruction Lab, an accelerator that has admitted 200 AI ventures. U of T is also a major partner in the Vector Institute, an independent, non-profit research institution that is helping to make the city a world-leading centre for AI research and commercialization. More than 30 companies, representing sectors as diverse as finance, insurance, and advanced manufacturing, have committed $85 million over 10 years to support Vector. In addition, philosopher Brian Cantwell-Smith is the inaugural Reid Hoffman Chair in Artificial Intelligence and the Human at U of T’s iSchool, sponsored by LinkedIn co-founder Reid Hoffman.

**KEY EDUCATIONAL & RESEARCH PROGRAMS**
- Applied Computing
- Applied Genomics
- Computer Science
- Data Sciences
- Electrical & Computer Engineering
- Engineering Science: Machine Intelligence
- Linguistics
- Management Analytics
- Mathematics
- Philosophy
- Physics
- Psychology
- Statistical Sciences & Applied Statistics

**KEY FACILITIES, INITIATIVES & PARTNERSHIPS**
- Centre for Aerial Robotics Research and Education
- Centre for Applied Genomics
- Compute Ontario
- Computer Science Innovation Lab
- Creative Destruction Lab (CDL)
- Donnelly Centre for Cellular and Biomolecular Research
- Engineering Entrepreneurship Hatchery
- Fields Institute for Research in Mathematical Sciences
- Health Innovation Hub
- Institute for Clinical Evaluative Sciences (ICES)
- Institute for Robotics and Mechatronics
- Intelligent Transportation Systems (ITS) Centre and Testbed
- NanoMechanics and Materials Laboratory
- RBC Research in Machine Learning
- SciNet
- Southern Ontario Smart Computing Innovation Platform (SOSCIP)
- Toronto Institute of Advanced Manufacturing
- Vector Institute for Artificial Intelligence
ROSS INTELLIGENCE
In 2017, San Francisco-based ROSS Intelligence announced the opening of ROSS North, their research and development headquarters in Toronto. Originally a U of T startup co-founded by alumni Andrew Arruda, Jimoh Ovbiagele and Pargles Dall’Oglio, ROSS uses AI to make the tedious process of combing legal databases faster and more efficient. Lawyers can ask ROSS questions as though they were talking to a colleague, dispensing with the usual keyword searches and Boolean queries. The company has always wanted a presence in Toronto because of the need to be close to the cutting-edge artificial intelligence research being done at U of T and affiliated institutions, such as the new Vector Institute, which are making Toronto a global leader in AI.

PHENOMIC AI
Founded by U of T PhD graduate Oren Kraus, Phenomic AI develops computer vision tools for a faster and more accurate analysis of microscopy data. The tools developed will help researchers spot subtle differences between cells that could be early signs of disease and identify promising drugs. Kraus’s research was supervised by University Professor Brenda Andrews, director of the Donnelly Centre for Cellular and Biomolecular Research, and Professor Brendan Frey of the department of electrical and computer engineering, and a founder of Deep Genomics, a U of T startup that uses AI to interpret genome data.

SYSOMOS
Founded by Professor Nick Koudas and Nilesh Bansal, Sysomos is a spinoff of the University of Toronto research project BlogScope. Sysomos equips the world’s best digital marketers with the technology they need to demonstrate and optimize the value of their work to their business, clients or partners. Through the use of contextual text analytics and sophisticated data-mining technology, the Sysomos social intelligence engine collects data from blogs, Twitter, social networks, message boards, wikis and major news sources, and integrates all of that data into one, intuitive user interface.

WINTERLIGHT LABS
Winterlight Labs was founded in 2015 by Professor Frank Rudzicz and students Katie Fraser, Liam Kaufman, and Maria Yancheva. Winterlight specializes in computational linguistics, cognitive neuroscience, and machine learning. The company has developed a proprietary, tablet-based technology that assesses cognitive health (including memory, thinking, and reasoning) by analysing hundreds of language markers from short snippets of speech.