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101 McGill research projects awarded $23.5 million in NSERC Discovery Grants funding

Funding supports groundbreaking research in the natural sciences and engineering

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The Natural Sciences and Engineering Research Council of Canada (NSERC) has awarded 101 McGill research projects funding from its Discovery Grants competition for a total investment of $23.5 million.

The Discovery Grants support ongoing programs with long-term goals, recognizing the creativity and innovation that are at the heart of all research advances.

The funding was announced June 14 as part of a suite of investments in discovery and applied research totaling $693.8 million.

AI-driven innovations to advance cybersecurity

Among the McGill grant recipients is Canada Research Chair in Data Mining for Cybersecurity, Benjamin Fung, of the School of Information Studies. Fung is establishing a program that pushes the boundaries of cybersecurity by developing AI-driven solutions that increase data analytics capabilities. In collaboration with key players in the cybersecurity field, including Defence Research and Development Canada (DRDC), Fung will develop AI-powered tools for analyzing firmware – the software that controls hardware devices – to identify vulnerabilities and detect malicious activities.

Fung's program also focuses on equipping national security experts with tools to identify and analyze disinformation campaigns on social media using an AI-powered system capable of processing large volumes of data from multiple social media platforms. His research program is timely given the Canadian government's recent enactment of Bill C-70, which updates laws to better equip the government to protect Canadians against foreign interference threats.

Advancing intelligent robotics in surgery

Another McGill grantee is Amir Hooshiar of the Department of Surgery in the Faculty of Medicine, and Director of the Surgical Performance Enhancement and Robotics (SuPER) Centre. He aims to advance intelligent robotics for the future of surgery by developing new fundamental knowledge and applied technologies for minimally invasive procedures.

The use of robots and AI in surgery can lead to significant improvements in patient outcomes and shows great potential, particularly in confined spaces such as the heart, digestive system, and respiratory organs.

Hooshiar's program will focus on creating safer, more user-friendly and more autonomous surgical robots through innovative embedded sensing, novel soft robot designs, enhanced robot-tissue interaction models and surgical AI models. This research will contribute to the emerging field of soft robotics in surgery, and the development of a new generation of surgical robots that are more intelligent and effective in treating diseases.

For a list of McGill's Discovery Research Program recipients, consult the database of awardees here.

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