2023 Projects

Version 3

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- **Automation of model training and evaluation process for predicting equipment downtime *(Funded by Natural Sciences and Engineering Research Council of Canada (NSERC) – College and Community Innovation Program – Applied Research and Technology Partnership (ARTP)):***

TGT Solutions Inc., based in Stratford, about 150 kilometres west of Toronto, specializes in technology-driven solutions, offering highly specialized products and services. The company wants to develop an AI-based solution for manufacturing companies to analyze large datasets, from sources such as production equipment and quality records, typically generated on production floors. The company is partnering with Dr. Uzair Ahmad, Professor, School of Software Design & Data Science, and a team of student researchers on the project, focusing on predicting equipment downtime. The research team will utilize datasets provided by Memex, TGT's partner company, and a low-code/no-code AI platform called mlOS, provided by Braintoy.

- **Front-end development for AI-based spectrum analyser for Software Defined *(Funded by Natural Sciences and Engineering Research Council of Canada (NSERC) – College and Community Innovation program – Applied Partnership and Technology Partnership (ARTP) grants):***

Qoherent develops intelligent radio technologies. It integrates machine learning-based signal processing into software-defined radios to build adaptive radiofrequency communications and sensing systems. The company is based in the GTA and is partnering with Riyadh Al Essawi, Professor, School of Software Design & Data Science. They will develop a user interface for an AI-based Software-Defined Radio (SDR) spectrum analyzer. The aim is to have a product that can receive and classify signals from an SDR in real time then highlight detected signals visually in a user interface.

- **Front-end development for AI-based spectrum analyser for Software Defined**

(Funded by Natural Sciences and Engineering Research Council of Canada (NSERC) – College and Community Innovation program – Applied Partnership and Technology Partnership (ARTP) grants):

CPOS Inc. is an Ottawa-based tech company that has been helping small and mid-sized businesses streamline their technology and operations for over a decade. Run by entrepreneurs for entrepreneurs their top-of-the-line customer service, dedicated software development team, and key understanding of the industry have made them an industry leader in online ordering, independent invoicing software, and bricks-to-click payment processing systems.

CPOS is constantly looking at more efficient and effective technology solutions to aid small and medium-sized business owners. Their latest innovation in this area includes the launch of ShiftPay, which will initially be aimed at the hospitality industry. This first-to-market software will aim to tackle the current widespread labor challenges faced by today's hospitality industry, enabling employers to pay out employees' wages and tips daily. Miles McDonald, Professor, School of Software Design & Data Science, will lead research assistants in a project to test ShiftPay's feasibility and develop a prototype of the software. ShiftPay is expected to be a game changer for the hospitality industry, enabling businesses to immediately pay employees in government-issued currency or cryptocurrency.

- **Predictive analytics for repayment probability forecasting in debt collection *(Funded by Natural Sciences and Engineering Research Council of Canada (NSERC) – Applied Research and Technology Partnership grants (ARTPs)):***

2h Business Information Systems Corp. is a Fintech innovation and technology service company based in Markham, about 30 kilometers north of Toronto. It works with clients such as startups, retail, and financial services. One of its software solutions is D2R-Collect, which helps collection agencies, financial institutions and accounts receivable departments streamline the debt recovery and collection process.

The company is partnering with Seneca to expand the product's functionality. Mariam Daoud, Professor, School of Software Design & Data Science, and researchers will work with artificial intelligence tools to build and evaluate predictive analytical models to improve D2R-Collect.

- **Content-based Tag Recommendation for Sector-Specific News Articles *(Funded by Natural Sciences and Engineering Research Council of Canada (NSERC) – Applied***

Research and Technology Partnership grants (ARTPs)):

Kaitongo Inc. provides industry-focused market insights using a contextual customer intelligence platform that leverages artificial intelligence (AI) technology. The Toronto-based company helps firms proactively connect with potential clients and build relationships. Kaitongo partnered with Vida Movahedi, Professor, School of Software Design & Data Science, and her research team to develop AI- and machine learning-based solutions to automate and support some of the work done by their analyst team. The result should lead to operating cost savings and enable the business to grow more quickly.

- **Smart Project Performance Management - Infrastructure Industry Operations Excellence through Machine Learning *(Funded by Natural Sciences and Engineering Research Council of Canada (NSERC) – College and Community Innovation Program – Engage Grants for colleges and Ontario Centre of Innovation (OCI) – Voucher for Innovation and Productivity (VIP)):***

Toronto-based Audiit Business Solutions Corp. provides data-oriented project management solutions for companies. The Audiit Platform is software for strategic data governance and project performance management. It provides ongoing decision-making support, performance improvements and offers schedule/cost control to customers with complex projects. Audiit works with high-profile clients in the infrastructure sector, including Bruce Power, Ontario Power Generation, Aecon Group Inc. and the K-Line Group of Companies. The technology that drives Audiit Platform utilizes Audiit Trail, which provides a complete history of events during projects for ongoing analysis. The data collection an opportunity to use advanced analytical techniques such as machine learning (ML) and artificial intelligence of which there has been notably slow uptake in the industry. Audiit is collaborating with Seneca's School of Software Design & Data Science to identify, validate, and implement ML models that can provide performance improvements for their customers. Led by Reid Kerr, Professor, School of Software Design & Data, student research assistants will find and test ML algorithms on both sample and real data provided by Audiit's clients, to discover which methods work best. Audiit will use the results on the platform, to give their customers the most advanced ML-backed data analysis on the market.

For more information, please visit: Applied Research Projects