

2018 Projects

Version 1

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- **TeamWorks TAVI Project (*Funded by FedDev Health Ecosphere*):**

Founded by **Dr. Sylvain Plante**, an interventional cardiologist at Southlake Regional Health Centre (Newmarket, Ontario), Inideo Inc. offers a suite of cardiac specific patient information flow and electronic medical records applications. The software has a significant impact on healthcare by enabling time and costs savings through workflow efficiency. In order to expand their product offering, Inideo and Southlake partnered with Professor **Asma Paracha** and student research assistants from Seneca's School of Information and Communications Technology to develop new modules to handle patient information flow related to a novel surgical procedure: transcatheter aortic valve implantation (TAVI). The project requires the research team to assess the workflow needs of TAVI procedures, adapt existing databases and create a useful web-interface and reporting system.

- **Increasing Accuracy of Text Extraction for a Single Category (Website Privacy Policy) of Legal Documents (*Funded by OCI*):**

Clausehound Inc. supplies business law training tools and curriculum to educational organizations including colleges, universities and startup services organizations. Clausehound's automations in contract drafting makes negotiation easier, and Clausehound collects "deal points" into inventory, to benefit deal negotiators on their current and future negotiations. Clausehound's products are currently in-market and are generating revenues; however, improving the accuracy at which information is retrieved from their internally-developed legal knowledge repository, and routed to users for review and drafting, is crucial for the growth of their customer base. Building on a previous applied research project with Seneca, Clausehound is collaborating with Prof. **Tanvir Alam** to develop machine learning algorithms that will maximize the accuracy of text extraction and comparison from a single category of legal documents (website privacy policies) where a significant amount of data is available to train the algorithms.

- **Advancing Video Categorization (*Funded by NSERC & OCI*):**

Vubble, a Toronto-based media tech company, builds solutions for trustworthy digital video distribution and curation. The need for automation of video curation is prevalent, as video is quickly becoming the world's dominant form of media consumption. Using a combination of algorithms and human curators, Vubble searches the internet to locate video content of interest to its users. Vubble has experienced significant year-over-year growth since incorporation, with an expanding customer base in the education and media spaces. Vubble is collaborating with **Dr. Vida Movahedi** and student research assistants from Seneca's School of Information and Communications Technology to develop a machine-learning algorithm that will automatically output highly probable categories for videos. With this algorithm implemented into the Vubble workflow, they will be able to better address customer demand, while increasing their productivity and competitiveness.

- **Development of Human Body Measurement workflow for 3D Scanning System (Funded by NSERC):**

Perfitt Inc. is a Canadian company that is developing a photogrammetry system for fashion applications. Building upon previous research collaboration with Seneca, Perfitt aims to quickly and unobtrusively obtain a 3D model of a human subject using multiple cameras and photogrammetry techniques. The resulting model is then analyzed to obtain measurements for bespoke clothing production and off-the-shelf clothing size recommendations. Taking body measurements for bespoke garments is a complex task that requires a lot of skill and experience. Being able to translate that skill into the controlling software is critical to the market success of the proposed system. To solve this challenge, Perfitt turned to Seneca to leverage the expertise of Professors **Philip Sparks** (School of Fashion), and **Chris Tyler** (School of Software Development and Data Science), along with student Research Assistants: **Tia McQuaid** (School of Fashion), and **Josue Quilon Barros** (School of Software Development and Data Science). A group of over 20 subjects with different body shapes and skin tones, were recruited with the purpose to perform 3D body scanning and to take detailed traditional, hand measurements. The data obtained through this process was then used to develop algorithms taking digital measurements off the 3D model, and to calibrate them for accuracy. The incorporation of the automatic human body measurement capabilities into the 3D scanning system, is a significant step for Perfitt in its efforts to build a comprehensive solution for the fashion industry.

- **Personalized Real-Time Location-Based Service Recommendation (Funded by OCI):**

Wazzio, established in 2013, is a technology company that has been offering value-added services to IT resellers that augment their product portfolios. In 2017, Wazzio identified an underserved market with high growth potential, spurring the development of the Rylli app platform, connecting customers to service providers. Launched in 2018, Rylli targets two

audiences: service providers with immediate availability and busy people who need to access various services instantly. At its core is a realization that, very often, people need access specific service(s) immediately and do not want to – or cannot afford to – spend a lot of time researching potential providers only to discover that the provider's next availability is weeks away. Since the key concept behind the app is on-demand access to services, Rylli's core driver is a real-time recommendation engine that will present consumers with a list of relevant service providers who have availability at the time of search. Wazzio will engage with **Dr. Mariam Daoud**, from Seneca's School of ICT, to develop customized data mining algorithms for this engine to enhance their existing platform. Seneca's team will research various techniques to reveal individual and group patterns and purchasing tendencies, which in combination with other information will be used as a basis for generating accurate recommendations, specific for each consumer. Receiving meaningful, accurate service suggestions will have a significant, positive impact on Rylli consumers' experience and perception of the app, leading subsequently to higher customer satisfaction, customer retention, positive app reviews, more subscribers and ultimately revenue growth for Wazzio.