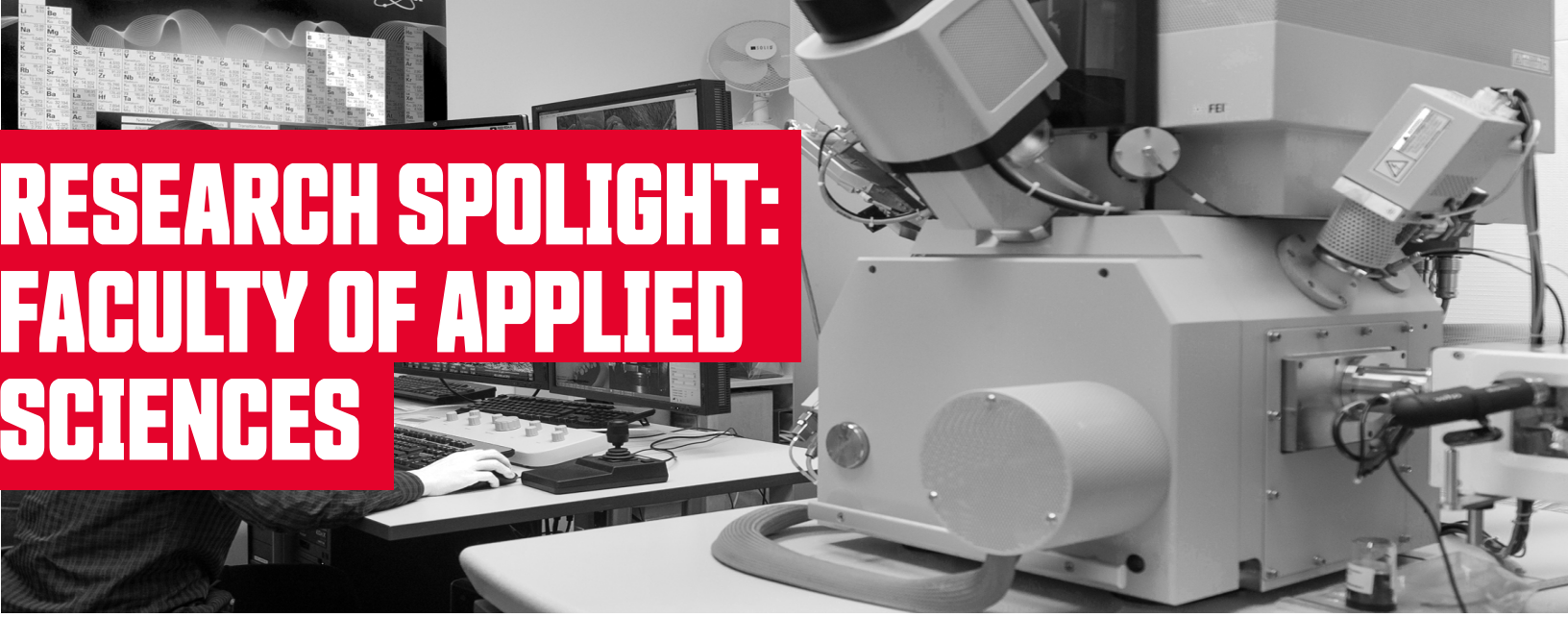

RESEARCH SPOLIGHT: FACULTY OF APPLIED SCIENCES

SFU'S FACULTY OF APPLIED SCIENCES (FAS) SHAPES TOMORROW'S TECHNOLOGY LEADERS IN COMPUTING SCIENCE AND ENGINEERING. FAS OFFERS CHALLENGING AREAS OF STUDY COMPLEMENTED BY UNIQUE LEARNING EXPERIENCES, FOSTERING A SPIRIT OF INNOVATION, ENTREPRENEURSHIP, PROFESSIONAL GROWTH AND LEADERSHIP ABILITY.

COVID-19 RELATED PROJECTS

SFU School of Mechatronic Systems Engineering professors Edward Park, Majid Bahrami, Mehrdad Moallem and Woo Soo Kim received a combined $200,000 from the NSERC COVID-19 Alliance Grant. These projects focus on developing wearable technology for COVID-19 patient monitoring at home, antiviral air filtration materials and systems, portable mechanical ventilators using 3D Origami Tubes, and real-time identification of the COVID-19 pandemic to help predict and control viral outbreaks.

Engineering Science professor Bonnie Gray and FAS researchers received almost $200,000 from the Department of National Defence throughout the COVID-19 IDEAS challenges for their project ***Scrubless scrubs: 3D printed materials, clothing, and coatings for self-sterilizing PPE and OCE.***

ENERGY MODELLING EXPERT RECRUITED BY UNITED NATIONS TO HELP REACH PARIS AGREEMENT GOALS

Taco Niet, an assistant professor of professional practice in the School of Sustainable Energy Engineering, is training international government representatives on Climate, Land, Energy, Water system (CLEWs) modelling. This project will help develop improved policies for reducing greenhouse gas emissions and better understand the impact humans have on the environment.

LINGUISTIC AI TECHNOLOGY POWERED ONE OF THE MOST POPULAR VIDEO GAMES OF 2020

Applied Sciences dean and School of Computing Science professor Eugene Fiume developed an AI workflow with colleagues from the University of Toronto that automatically generates character speech performances. This research helped the computer graphics industry deliver content faster at a higher quality while supporting complex computer-generated environments. Video game developer CD Projekt Red recruited them to transfer the technology to their game Cyberpunk 2077.

3D STRUCTURAL-SENSING ROBOT HEALTHCARE HELPERS BEING DEVELOPED AND TESTED BY SFU EXPERT

Woo Soo Kim, an associate professor in the School of Mechatronics Systems Engineering, and his research team have programmed two robots, including one humanoid figure and a robotic arm, to measure human physiological signals. The robotic arm measures respiration rate, heartbeat, temperature, and electrical signals from muscle movements. The humanoid robot monitors oxygen levels and could be used to monitor those who develop severe COVID-19 symptoms. The data from these robots can be viewed in real-time on the robot's monitor or sent directly to a healthcare provider. Further development and testing are currently planned with healthcare collaborators.

HEAT ON WHEELS OFFERS LOW-COST GREENHOUSE GAS REDUCTIONS FOR SURREY

New technology being developed as part of a three-year collaborative project by engineers at SFU could satisfy the low-carbon heating and cooling needs of Surrey's district energy network (DEN) by using tanker trucks to collect and deliver waste energy. The use of Mobile Thermal Energy Storage (M-TES) closes the gap between far-flung sources of industrial waste energy and densely populated urban areas, using a liquid that stores thermal energy chemically. This allows wasted heat collected from industrial sources, data centres, hockey rinks, and bioenergy facilities in rural areas to be harvested and transported by tanker trucks and received by a thermal energy storage facility attached to a DEN like the one in Surrey Central. This project will potentially displace a substantial portion of natural gas consumption and greenhouse gas emissions produced.

MAJOR FUNDING AWARDS AND GRANTS

FAS researchers received over $400,000 in funding through NSERC's PromoScience competition to develop a Pathway to Science, Technology, Engineering, Arts and Math (STEAM) aimed at providing equitable access to STEAM education to at-risk communities, indigenous youth and marginalized girls.

10 FAS researchers received more than $1.2-million from the Canadian Foundation of Innovation's John R. Evans Leaders Fund (CFI JELF).

2020 NOTABLE RECOGNITION AND AWARDS

SFU School of Computing Science professor Sheelagh Carpendale was appointed a Tier 1 Canada Research Chair in Information Visualization. Her research focuses on the challenge of creating interactive data visualizations to improve accessibility and comprehension to better support the increasing diversity of people who are impacted by data.

Manolis Savva, a professor of computing science, was appointed a Tier 2 Canada Research Chair in Computer Graphics. Savva is currently researching how to train artificial intelligence (AI) to understand the 3D structures of our living spaces. This research could be influential in improving AI assistant technologies such as Alexa or Google Assistant.

School of Computing Science professor Mo Chen was named as a Canada CIFAR Artificial Intelligence Chair for his work designing AI algorithms to satisfy performance and safety requirements.

Faculty of Applied Sciences dean and School of Computing Sciences professor Eugene Fiume was inducted into the ACM SIGGRAPH Academy for his substantial contributions to the field of computer graphics.

School of Computing Science professor Richard Zhang was named a 2020 Distinguished SFU Professor for his exceptional performance and distinguished accomplishments.

THE MISSION OF THE FACULTY OF APPLIED SCIENCES IS TO CONDUCT RESEARCH THAT WILL MAKE A SIGNIFICANT IMPACT SOCIALLY, ECONOMICALLY AND INTELLECTUALLY.