



this issue

- Director's Message
- Research Highlight:
Dr. Raymond Spiteri, a
mathematical mind
 - From the Field

Message from the Director, Dr. Mansfield Mela

The traditional colleges and departments (Law, Nursing, Medicine, Psychology, Sociology) that form the interdisciplinary partnerships within the Centre for Forensic Behavioural Science and Justice Studies (the Forensic Centre) were conceptualized to have direct relevance to the matters of criminal law, correctional and forensic mental health. University departments (Mathematics, Computer Science and Economics) and schools (School of Public Policy and School of Public Health) turned out to also be pertinent and influential to the scope of work under the Forensic Centre. We are pleased to have faculty members like Professors Raymond Spiteri and Nathaniel Osgood share their special and germane expertise with the Centre. These faculty members have been instrumental to the foundations and the future of the Centre.

We are excited to feature, in this newsletter, Dr. Ray Spiteri and observe the rich research contributions he has made and continues to make. He, along with other colleagues in Computer Science and Math and Stats, is the reason we have one of the few big data laboratories in Saskatchewan. The Saskatchewan Police Predictive Analytics Laboratory (SPPAL) is both current and futuristic; an innovation of significant implications. The University of Saskatchewan, through this project, made clear its desire to build a coalition of willing partners and collaborators to advance science with relevance to the society. We are going to be able to identify missing people faster and likely minimize negative outcomes.

We are now also able to identify those more likely to succumb to the deadly outcomes of opiate overdoses and, in relation to suicide prevention, researchers like Professor Spiteri can develop the framework to support clinicians with the most sensitive indicators in highly suicidal patients to effectively intervene.

Professor Spiteri's work on the Centre's Executive Committee (representing the College of Arts and Science) has been insightful and supportive of its mandates.

In a broader public safety and cost benefit perspective, tools and methods developed can model years of appropriate and inappropriate custodial remand use. Thus, financial savings can be identified by a renewed and more accountable system and such savings diverted to alternative uses.

Thank you to Dr. Spiteri for such meaningful contributions.

Our 2-day virtual 19th Violence & Aggression Symposium concluded on Tuesday May 31, 2022. This offering focused on our 'new reality' and how the pandemic has affected corrections and policing including innovations in virtual programming, assessment, and interventions, as well as relevant topics associated with the overarching symposium themes of violence and aggression. The next offering will be in person, spring 2024.

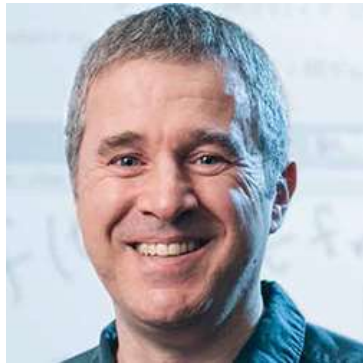
I am pleased to announce that our current Post Doctoral Fellow, Dr. Bryce Stoliker, has accepted the position of Research Officer in the Forensic Centre. He has been an immense asset to our work so far and we look forward to continued engagement with partners' projects he has been involved with.

I hope you enjoy the rest of summer.

Dr. Mansfield Mela
Director, Centre for Forensic Behavioural Science and
Justice Studies

Forensic Centre's Research Highlight

Dr. Raymond Spiteri, a mathematical mind



Dr. Raymond Spiteri, Professor Computer Science, University of Saskatchewan
Executive Member of the Centre for Forensic Behavioural Science and Justice

Dr. Raymond Spiteri, an Ontario-born, Maltese-raised faculty member of the USask Department of Computer Science, has always had a keen interest in problem-solving. This passion led to a career of doing just that as a Numerical Analyst. A graduate of Western University (B.Sc. Hons. '90) and University of British Columbia (Ph.D. '97), Ray joined the University of Saskatchewan in 2004 after positions at Acadia and Dalhousie. While one may not immediately link research in forensic behavioural science and justice with pencil and paper or computer-based mathematics, Spiteri has found a way to bridge that gap and form many other seemingly unlikely collaborations throughout his career.

If you have ever asked or been asked the question, “When will I *ever* need to use this in real life?” about math, Spiteri’s work may hold the answer. Many advances in everyday and industry products and services are thanks to math. For example, Ray had a hand in the early days of the Global Positioning System (GPS) for use in the airline industry using *industrial math* – a fittingly interdisciplinary field that borrows from ‘non-mathematic’ areas like computer science, engineering, and physics for direct application to solving industrial problems. While it is true Grade 10 basic math credit may not provide the skills necessary to conduct this research, these building blocks are the foundation for innovation and collaboration across many industries.

Professor Spiteri’s partnership with the Centre for Forensic Behavioural Science and Justice Studies is another example of how a mathematical approach to research can complement work in many other disciplines. Now a member of the CFBSJS’ Executive Committee representing the College of Arts & Science, his work with the Centre started from a project with Dr. Daniel Anvari, a former Research Officer and current Consultant with the CFBSJS. Spiteri was introduced to the Centre and lent his mathematical mind to projects using the Level of Service Inventory (LSI) dataset to look at recidivism and mathematical models surrounding that work. Ray’s work continues to align that of the CFBSJS through the Missing Persons Initiative: Saskatchewan Police Predictive Analytics Lab (SPPAL), now in Phase II with members from Saskatoon Police Services, the Government of Saskatchewan, the Forensic Centre, and USask faculty from Computer Science and Mathematics & Statistics. This work will further develop and validate existing models and algorithms for missing persons. Plans continue to evolve to engage other police agencies and grow information sharing across the map.

Pre-pandemic, Spiteri was in the midst of planning an international conference with colleagues in his island-state stomping grounds. Malta, where he lived as a teenager, was to serve as a place to bring together experts and researchers from around the world. Not a good fit for a virtual offering, Ray looks forward to resuming planning for the face-to-face event soon.

We welcome all
feedback!

Please provide [HERE](#)
at any time.

His interdisciplinary work continues through involvement in simulation projects with the Global Institute for Water Security, the Physics and Engineering Physics Department, and Mechanical Engineering, and work on simulating the electrical activity of the heart – all ‘big’, complicated problems that *need* supercomputers for their solution. Ray, self-admittedly, is interested in numerical analysis for its own sake but has always been driven by seeing results in practice that make a difference to ‘somebody’. Often his work starts with a partner saying, “Here is our problem, can you help us?”

Professor Spiteri’s involvement with [Mitacs](#) (previously known as The Mathematics of Information Technology and Complex Systems) for over 20+ years is testament to his devotion to advancement in the field. This national, not-for-profit research and training organization is dedicated to advancing collaborations between industry, academia, and the public sector in Canada. Mitacs-funded research helps to strengthen connections, improve economic performance, and create jobs. Ray received the 2021 Mitacs award for exceptional leadership by a professor.

Ray is also actively involved on the Evaluation Groups for the Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Grant program. As a past recipient for his research on scalable paradigms and software for exascale scientific computing, Dr. Spiteri served on EG1508 (Math and Stats) to review NSERC proposals, also serving as Section Chair of the Applied Math Stream, for 3 years. In 2021, he was named Group Chair for EG 1508. While he no longer reviews individual grant applications, he maintains an active hand in reviewing, developing, and maintaining consistency in policies and practices across NSERC.

Now operating a lab expected to reach up to 20-strong by the end of 2022, he trains graduate students, postdoctoral fellows, and technicians wanting to obtain practical job experience and networking connections in this vast field of study. Preparing high-caliber graduates for employment -- and hearing back from those employers how successful his recommendations are -- is proof of his superior supervisory skills. In the short term, Ray aims to continue to grow his lab by recruiting students and supervising their programs to completion. Beyond ‘the next five’, his research goals and potential continue to be limitless.

Up next for Spiteri’s mathematical application is an SK-born innovative and technological look at clothing sizing and online shopping. With online shopping options continuing to expand but clothing sizing methods remaining status quo, the rate of costly returns is an ongoing issue. Neither the vendor nor customer wins in this situation, but does this problem have a mathematical solution? Enter a numerical analyst with a collaborative drive to save the day! His team is developing a way of taking current dimensions for common garments, e.g., a t-shirt, and combining that information with body measurements from a customer to create an avatar that can show the customer how that garment will fit. Currently in the testing phase, rollout is expected this fall with select Canadian retailers, including local sports teams who are looking to enhance the customer experience while increasing the top line and decreasing the bottom line.

When you interact with Professor Spiteri, there is no question you are in the presence of not only a highly intelligent professor but someone with a genuine passion for his field. The fact that his work lends so well to answering an array of research questions *and* fix a gamut of real-world problems aside, he is so generous with his time and expertise. For any Star Trek fans out there, all three of you may relate the helpful character *Data* to Professor Spiteri – incredibly smart, meticulous, with an extremely high functioning computational mind. When asked to engage in Centre operations in addition to his busy schedule, it is *never* ‘no’, but similar to his research philosophy, it is ‘let me see how I can make it work’.

The next time you are asked ‘what is math good for’, point to Professor Raymond Spiteri’s ongoing work on various initiatives during his impressive career!

by L. Sorowski,
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July 2022

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From the Field



The Centre for Forensic Behavioural Science and Justice Studies enjoys a 5-year Collaborative Research Agreement with the Research and Implementation Branch (RIB), Ministry of Corrections Policing and Public Safety, Government of Saskatchewan. On May 19, 2022 the CFBSJS hosted RIB for its first in-person gathering since 2020 to discuss future initiatives and research opportunities. More information in the fall 2022 newsletter.

We are recruiting

3

Postdoctoral
Fellows

Please view
and share the
[posting](#)



As mentioned in the *Message from the Director*, the CFBSJS and its partners hosted a successful virtual offering of the V&A on May 30 & 31. Approximately 200 attendees viewed live presentations speaking to topics surrounding individuals and communities who have experienced trauma and symptoms of posttraumatic stress disorder, trends, challenges, and concerns in corrections stemming from COVID-19, Indigenous health, mental health, and wellness, virtual treatment services and ethical practice in a virtual world, Policing postures in the post-George Floyd Era, opportunities to improve the health status of people who experience detention and incarceration, Reducing stigma and discrimination towards individuals with substance use disorder, [and more](#).

Join us in person for the next offering, spring 2024.