THE KEYSTONE PROFESSIONAL

THE OFFICIAL PUBLICATION OF **ENGINEERS GEOSCIENTISTS MANITOBA**

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INSIDE

THIS ISSUE

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Practitioners are also encouraged to submit articles and photos on topics that would be of interest to the membership.

Engineers Geoscientists Manitoba recognizes that Winnipeg is on Treaty 1 territory, the territory of the Anishinaabeg, the Nehiyaw, the Oji-Cree, the Dakota, and the Dene Peoples and on the homeland of the Métis Nation.

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ENGINEERS GEOSCIENTISTS MANITOBA

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ENGINEERS GEOSCIENTISTS MANITOBA

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PRESIDENT'S MESSAGE

DAVID AMORIM, P.ENG.

FROM AIRBAGS TO ARTIFICIAL INTELLIGENCE: WHY DEI MATTERS

In recent years, the topics of diversity, equity, and inclusion (DEI) have become commonplace in the corporate world with many organizations, including Engineers Geoscientists Manitoba, investing significant time and effort in this space.

However, in only a few days following President Donald Trump's inauguration, years of progress in this space have been erased with many major companies succumbing to right-wing political pressures, scaling back or eliminating their DEI initiatives altogether.

This doesn't come as a surprise – on my time on Council, I've noted that several of the most controversial and debated topics have been related to DEI - 'Why are we wasting member dues on these initiatives?', 'We are compromising the safety of the public!', 'I just don't understand what DEI has to do with the practice of engineering and geoscience.' Despite these rebukes against DEI - which I believe are rooted in fear, ignorance, or misunderstanding, and resistance to change - I believe that having a diverse, equitable, and inclusive membership is critical to the long-term success and relevance of our professions.

The importance of DEI in the workforce extends far beyond moral considerations. Research demonstrates that diverse teams outperform homogenous ones - a study by McKinsey & Company (*Delivery through Diversity, 2018*) found that companies in the top quartile for gender diversity on their executive teams were 21% more likely to achieve above-average profitability compared to their less diverse peers. Similarly, those with higher ethnic and cultural diversity were 33% more likely to outperform.

While some researchers have claimed that McKinsey's findings were flawed and that the data does not actually demonstrate a statistically significant correlation between DEI and financial performance, there have been numerous case studies through history that have definitely demonstrated the importance of DEI and its impact on the public – and given that the Association is a not-for-profit with the primary purpose of regulating the safe practice of engineering and geoscience (as opposed to maximizing shareholder returns), the historical lessons demonstrating the importance of DEI should not be overlooked.

One of the most famous cases highlighting the pitfalls of homogeneity as it applies to our professions is the design of automotive airbags in the 1990s. Early model airbags were designed based on crash test data utilizing dummies of the average American male, representing the 50th percentile adult male in terms of height, weight, and body composition.

To much surprise, the inclusion of early model airbags resulted in disproportionately higher rates of injury and fatalities among women and children during airbag deployment, due to the airbag's excessive force against smaller-framed individuals seated closer to the steering wheel. Considering this, the National Highway Traffic Safety Administration (NHTSA) introduced stricter regulations requiring more inclusive testing standards, particularly the use of crash test dummies representative of women and children. Interestingly, to ensure women are better protected in automotive crashes, Astrid Linder, an engineer at the Swedish National Road and Transport Research Institute (VTI), designed the world's first true female crash test dummy called SET 50F. SET 50F's design was based specifically on the average female morphology (ie neck, shoulder, hip dimensions), a significant improvement over the first female crash test dummies implemented following NHTSA's stricter regulations, which were simply scaled-down versions of the male crash test dummy. Despite NHTSA's regulations coming into force over a decade ago, testing on the SET 50F dummy only began in Sweden in 2023.

A more recent example is that of the biases encountered in early facial recognition systems, whose artificial intelligence technology relies on training datasets to learn how to identify and differentiate faces. The earliest systems utilized training datasets composed primarily of lighter-skinned males. The result, as researched and published by MIT's Joy Buolamwini's (*Gender Shades: Intersectional Accuracy Disparities in Commercial Gender Classification, 2018*) is that these systems were quite accurate for white men, with facial recognition error rates below 1%; however, error rates for black women were as high as 35%. Given that facial recognition technologies are being used for decision making in things like policing, surveillance, and airport security, their accuracy has implications on the public, and can be consequential, affecting people in serious ways.

I'm hopeful you can appreciate how diversity within the research and development teams of both automotive airbags in the 1990s and facial recognition systems in the mid-2010s may have avoided the unintended issues - airbags that posed a hazard to women and children and facial recognition systems that inaccurately identified black women.

Conversely, there are inspiring examples of how DEI has driven innovation and positive outcomes. For instance, the development of prosthetic limbs has greatly benefited from the inclusion of individuals with disabilities in the design process. Imagine a design team of able-bodied individuals creating artificial limbs for their customer base without ever taking into consideration the needs and perspectives of the user, or without ever being able to even trial the devices themselves! This example of DEI at work may seem so common sense that it is disregarded – however, DEI in the world of prosthetics is a relatively recent advancement.

MOVING FORWARD: WHAT CAN WE DO?

Unfortunately, our professions have not always embraced diversity. Women, Indigenous peoples, visible minorities, and individuals with disabilities remain underrepresented in engineering and geoscience. **This lack of diversity limits our capacity to solve complex problems and meet the needs of an increasingly diverse society.** Addressing this imbalance is not about fulfilling quotas; it is about enriching our professions and ensuring their resilience. As members of Engineers Geoscientists Manitoba, we have a responsibility to champion equity and diversity in our professions. Here are some actionable steps we can take:

1. **Encourage Inclusive Recruitment and Retention**
   Employers in engineering and geoscience should prioritize diversity in their hiring practices. This includes reaching out to underrepresented groups and creating work environments where everyone feels valued and respected – this does not mean hiring the minority over a non-minority to fulfill a quota and it does not mean lowering the minimum standards to achieve DEI outcomes. It means making sure the best candidates aren't overlooked or pushed out due to inequity, bias, or mistreatment.
2. **Promote Education and Awareness**
   Equity, diversity, and inclusion should be integral to professional development. Workshops, training sessions, and discussions can help members understand the value of diversity and recognize unconscious biases that may influence decision-making.
3. **Engage with Communities**
   Building relationships with schools, Indigenous communities, and other organizations can help inspire a new generation of engineers and geoscientists from diverse backgrounds. Outreach programs and scholarships can play a pivotal role in breaking down barriers to entry.
4. **Lead by Example**
   As professionals, we must model inclusive behaviors in our workplaces and professional interactions. Small actions, such as ensuring everyone has a voice in meetings or challenging stereotypes, can have a ripple effect.

A SHARED COMMITMENT

Achieving equity and diversity in engineering and geoscience is not a quick or easy task. It requires a sustained, collective effort. As President of Engineers Geoscientists Manitoba, I invite all our members - particularly those who are outspoken against DEI initiatives - to pause and reflect on why you may have such a strong reaction to DEI; and to challenge whether the response is based in fact or whether it is an emotional response to fear or change. I encourage you to consider the role you can play in advancing equity and diversity within our professions. Together, we can build a future where engineering and geoscience are not only technically excellent but also inclusive, equitable, and reflective of the society we serve.

Feel free to reach out anytime at President@EngGeoMB.ca. Your feedback is appreciated.

CEO'S MESSAGE

M. GREGOIRE, P.ENG., FEC

STEADY AS SHE GOES

As noted in the last edition of the Keystone Professional, Engineers Geoscientists Manitoba will be setting its sights on a new strategic plan during this reporting year. We continue to progress towards that major goal and will complete it in the coming months. However, important work continues even while we await confirmation of the new, long-term 'destination ports'.

A key activity this past fall was the growth of Engineers Geoscientists Manitoba's Ingenium. This annual professional development conference, which took place over three days in November, was once again designed specifically for our members, licensees, and interns. This year saw a 24% growth in attendance compared to 2023, and the value of having this conference delivered online was proven through the fact that engineers and geoscientists attended from Alberta, BC, Ontario, and Saskatchewan as well as rural Manitoba locations including Brandon, Dauphin, Lac Du Bonnet, Flin Flon, Stonewall, Neepawa, Morden, and Winkler. We even had a video greeting from the Premier of Manitoba!

On the regulatory front, we have been undertaking a fulsome review of the Manual of Admissions. This key policy provides direction from Council to our registration processes when determining who can get registered in Manitoba. The current review has been guided by a task group comprised of councillors, staff, and members of the Registration Committee. Their work has, in turn, been heavily informed by feedback from other Canadian regulators, members, and the Fair Registration Practices Office of the Province of Manitoba (FRPO).

Changes to the Manual of Admissions have already been made on two occasions. In the first round, made back in September, some key updates were implemented affecting a variety of applicant types. One example relates to official recognition of the IntPE designation, which is based on an international recognition agreement. Engineers Geoscientists Manitoba will now accept applicants coming from the 19 participating countries who present with the IntPE designation.

Another example is official adoption of the requirement for minimum ratings in the 'Canadian Environment Competencies' in the CBA program. This brings us into alignment with other provincial regulators in requiring that applicants prove their understanding of elements such as Canadian codes and standards. A third example of the changes made in September relate to clarifying requirements for English language requirements; a recommendation made to us by the FRPO.

A second round of changes to the Manual of Admissions also occurred in December. These changes are interim in nature and relate specifically to assessment of academic credentials. Made in response to an internal audit and significant feedback on the topic, these changes temporarily restrict some options while broadening others. This temporary assessment process will be superseded later this year when the final round of changes for this review is implemented. The final round is intended to provide a balance of options for people of all backgrounds, while ensuring that the public is protected. Keep your eyes open for engagement on this topic, as your feedback is important!

Work has also begun in the past few months at an even higher level. The Engineering and Geoscientific Professions Act is the legislation that brings Engineers Geoscientists Manitoba into existence. Some incremental changes have been made to the Act in the past, but significant changes have not been made since 1998. Council has approved staff to undertake research into a potential full re-write of our legislation.

Last summer, legal research was undertaken to gain a full understanding of the current landscape for professional regulation in Canada. In the fall, this was followed by engagement of the membership through focus groups. Further engagement of Council and external stakeholders will occur in the coming months.

An exciting component of this project is its timing. With the launch of Engineers Canada's collaboration and harmonization project last year, ours could be the first legislation reviewed towards national harmony. The Act re-write will also come on the heels of the next strategic plan for Engineers Geoscientists Manitoba.

On that topic, a consultant was very recently selected to assist our Council in developing the next strategic plan. Research in the coming weeks will assist in developing a survey to members. This will be followed up by a final development session of Council in March with an aim to publish before the summer.

After a period of significant transition, Council is poised to set a new strategic plan; the intended destinations for our ship. As we wait for this document to be implemented, however, we continue to make strides of progression to improve the ways in which we protect the public.

EXPANDING YOUR KNOWLEDGE: PROFESSIONAL DEVELOPMENT FOR ENGINEERS AND GEOSCIENTISTS

Engineers Geoscientists Manitoba has been embarking on a multi-year Equity in Regulation Action Plan to address ongoing negative experiences that have been described by practitioners from equity-deserving groups (demographics who have been historically legally discriminated against). These demographics include practitioners with a disability, 2SLGBTQ+, Black, Indigenous, practitioners of colour, and women.

The qualitative and quantitative data confirmed that women and Indigenous Association members currently experience racism and sexism in a multitude of forms, such as outright harassment, and lack of institutional support to address harmful experiences. The data also showed that those belonging to the 2SLGBTQ+ and practitioners with a disability groups had the highest volume of reports for receiving unequal treatment in 2024.

The concepts of Equity, Diversity, and Inclusion (EDI) and Truth and Reconciliation (TRC) continue to evolve, and it is important that engineers and geoscientists especially understand the broader social and cultural contexts in which they work. Protection of the public is foundational to regulation. Education of practitioners is one critical step in eliminating harms and injustices.

Further research has shown that licensing bodies across the country have made changes to their expectations in respect to EDI and TRC.

When it comes to licensing and accreditation, some regulators in the legal, health, engineering, and geoscience professions have introduced both voluntary and mandatory core competency training in the form of professional development training.

While the Association is still in the beginning stages of the multi-year action plan, staff in the Equity and Representation department have been piloting EDI and TRC professional development modules currently being offered through Engineers Geoscientists British Columbia's online Knowledge Centre, Rainbow Resource Centre, and other portals that host EDI based content. Below, you will find a brief content overview of some of the courses:

FOUR SEASONS OF TRUTH AND RECONCILIATION COURSE:

The Four Seasons of Truth and Reconciliation course aims to provide the foundational awareness and learning of Truth and Reconciliation. Topics covered in the course include economic reconciliation, residential schools, Indigenous relations, treaties, United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), among others. Estimated duration of the course is 2.5 hours and includes supplemental materials. The cost of the course varies by portal.

THE VALUE OF INDIGENOUS ENGAGEMENT ON ENGINEERING AND GEOSCIENCE PROJECTS COURSE:

This course includes a panel session where the panelist will discuss their experience and knowledge about fostering collaborative relationships with Indigenous communities and combining traditional knowledge with western science. Included in this course is a follow-along engineering project activity, involving a hypothetical case study. The delivery method is a recorded live seminar with supplemental materials that takes around 5.5 hours to complete, costing $50. This course is available through the EGBC Knowledge Centre, and registration is open to the public and practitioners.

2SLGBTQ+ AFFIRMATION, INCLUSION, & AWARENESS E-LEARNING COURSE:

This course is offered through Winnipeg's Rainbow Resource Centre, and explores the historical, cultural, biological, and systemic intersections of Two-Spirit, Lesbian, Gay, Bisexual, Transgender, and Queer + folks. There are three modules to complete that cover definitions of gender identity, sex-assigned at birth, culture and systems of oppression, and understanding intersectionality and leveraging your privilege to create safer spaces. Supplemental materials are included, and the total time takes around 1.5 hours. The cost of the course is $50.

More modules that have been successfully completed by staff at the Association through EGBC'S Knowledge Centre include Land Acknowledgements for Engineering and Geoscientists; An Introduction to the United Nations Declaration on the Rights of Indigenous Peoples; Indigenous Peoples, Collaboration, and Projects; Professional Practice Guidelines: Equity, Diversity, and Inclusion; and EDI for Engineers and Geoscientists.

2025 AWARD NOMINATIONS

STUDENT ACHIEVEMENT AWARD

NOMINATION DEADLINE: FRIDAY, MAY 9, 2025

Undergraduate Students enrolled with Engineers Geoscientists Manitoba could

WIN $1,000

by Showcasing their Groundbreaking Engineering or Geoscience Project

www.EngGeoMB.ca/**Awards**.html

MARCH IS NATIONAL ENGINEERING & GEOSCIENCE MONTH

FOR UPCOMING EVENTS, PLEASE VISIT:

www.EngGeoMB.ca/**Events.html#EngGeoWeek**

EngineersCanada.ca/**News-and-Events/National-Engineering-Month**

PROJECT TO CHANGE THE ASSOCIATION'S ACT IS UNDERWAY

Engineers Geoscientists Manitoba's Council has assigned the Government Relations Department the task of a major rewrite to the legislation that governs our Association. Council President David Amorim, P.Eng., Past-President Kathryn Atamanchuk, P.Eng., along with CEO & Registrar Mike Gregoire, P.Eng., Director of Government Relations Scott Sarna, and Project Manager Eric Schillberg, EIT, met with Minister of Labour and Immigration Malaya Marcelino in early September 2024 and received the Minister's consent to proceed.

WHY THE ACT IS BEING REVIEWED AND REWRITTEN

There is a need to modernize the Act, which still contains legacy clauses and themes from the original Act of 1920. Legislative drafters in the Manitoba Government noted the need to update the Act during the most recent amendment that came into effect on November 1, 2023. Legislative change is being driven by the need to ensure that the regulatory framework remains robust, relevant, and responsive to the dynamic landscape of professional practice and public protection.

Furthermore, our Act is in the purview of the Government of Manitoba, who decides what the bill to amend the Act will contain. The legislative process includes three "readings", which involves a review by the opposition parties in the House, and a committee stage, when members of the public may make oral and written submissions about the bill. It is therefore fundamentally important that the Association anticipates and is responsive to government, opposition parties, and public expectations regarding the professions and our legislation. For more information, see the Legislative Assembly of Manitoba's Fact Sheet No. 4, How Laws Are Made.

STAKEHOLDER ENGAGEMENT

To initiate member engagement on the changes needed to the Act, focus groups were initially held in December 2024 with professional engineers, professional geoscientists, internationally educated engineers, interns, and rural/northern professional engineers through Probe Research Inc., a third party with significant expertise in external engagement and polling. Additional focus groups and interviews are planned for January and February with additional internal stakeholders, including Past Presidents, the Investigations, Discipline and Registration committees, and Council. After the internal consultations are completed, Probe will commence work on external consultations through focus groups, interviews, surveys, and polling in February and March with engineering students, our allied professions, employers, Indigenous organizations, educators, the public sector, and possibly additional stakeholders.

STAKEHOLDER ENGAGEMENT REPORT AND NEXT STEPS

Probe Research will prepare a report for the Association's management team and ultimately Council that will summarize the results of the stakeholder consultations and will identify the key findings and implications for the Act rewrite. These findings will be reviewed by legal counsel for the project, to be obtained this winter through a Request for Proposal process. Then the legal drafting will begin, followed by further reviews, until a draft bill is ready to be presented to the Government of Manitoba.

For more information about the Act Change Project or to provide feedback, please contact Scott Sarna, Director of Government Relations, at SSarna@EngGeoMB.ca.

UPDATES TO THE BY-LAW: SENIOR MEMBER QUALIFICATIONS AND INSURANCE REQUIREMENTS

Each year, the By-law Review Committee evaluates whether any legislative changes are necessary. The committee conducts member engagement sessions, organizes third-party focus groups, and solicits feedback from the membership before any changes are sent to legal counsel for drafting. Once drafted, members may provide additional feedback before the proposals are forwarded to the membership for a vote.

At the 2024 Annual General Meeting, it was announced that nine proposals were voted on by the membership, and all were passed. These changes took effect in November 2024.

Members should be aware of two specific By-laws, 9.1.3 and 18.2, which pertain to **Senior Membership Qualifications** and **Liability Insurance Requirements**, respectively. Additionally, compliance with the Insurance Requirements by-laws must be completed in 2025.

SENIOR MEMBERSHIP QUALIFICATIONS

In 2020, a new Senior Member category was introduced to acknowledge the status and working conditions of practitioners who have dedicated many years to the profession. To qualify for this category, a professional member must:

- be in good standing; and
- have been registered with a Canadian professional association as an Engineer for at least 30 years or have been practicing or registered as a Geoscientist for at least 30 years.

The recent change made in 2024 recognizes that some Senior Members may still be working full-time (as defined in the by-laws), while others may not. Senior Members can make an annual declaration of whether they worked under or over 300 hours in the preceding year at the time of renewal. Those working less than 300 hours will have their dues waived for the year.

LIABILITY INSURANCE REQUIREMENTS

The changes passed for By-law 18.2, make it a requirement for all professional members, temporary licensees, and specified scope of practice licensees (SSPL), who are practising individually ("sole proprietors"), to hold professional liability insurance. This change aims to better protect the public, clients, and practitioners.

Practitioners will have until December 31, 2025, to comply with the new requirements and will need to declare their compliance annually during their membership renewal. After this grace period, starting January 1, 2026, practitioners will be required to hold the same insurance as Certificate of Authorization holders, the details of which are set by Council.

MORE INFORMATION ABOUT THE ENGINEERS GEOSCIENTISTS MANITOBA BY-LAWS, INSURANCE COMPLIANCE, AND OTHER UPDATES CAN BE FOUND AT:

https://www.EngGeoMB.ca/PDF/Bylaws.pdf

https://www.EngGeoMB.ca/Insurance.html

https://www.EngGeoMB.ca/News.html

COMPETENCY BASED-ASSESSMENT GUIDES & CANADIAN ENVIRONMENT COMPETENCIES

Competency-Based Assessment (CBA) is the approach used by the Association to assess engineering and geoscience experience for first-time professional registration and specified scope of practice licensure. The Association has used the pan-Canadian CBA approach since 2022 for new applicants. In October 2024, the Association adopted updated CBA guides to align with other Canadian regulators and the online competency assessment reporting system. Instead of the previous single CBA guide, four guides that are user and profession-specific are now available for guidance and reference. By adopting these new guides, applicants, validators, and assessors will have the most up to date, required information based on their role in the CBA process. The updated and new guides are available at: www.EngGeoMB.ca/CBA to assess experience and competency.

CANADIAN ENVIRONMENT COMPETENCIES

The Association also adopted Canadian environment competencies. To successfully complete CBA, an applicant must demonstrate that they have competencies and experience equivalent to working in the Canadian environment. However, this experience can be gained in Canada or internationally.

Canadian environment competencies are assessed through 8 of 34 competencies for engineering and 7 of 29 competencies for geoscience, which demonstrate an applicant's knowledge of Canadian regulations, codes, standards, quality control, safety awareness, professional accountability, and communication.

If international work examples are used for these competencies, the applicant is responsible for demonstrating equivalency of the examples to the Canadian work context. Canadian environment competencies are assessed by a CBA Assessor of the Association when the self-assessment and competency validation are complete.

To satisfy the Canadian environment experience requirement, all professional engineering and geoscience applicants and specified scope of practice licensee applicants are required to achieve each of the Canadian environment competencies at a minimum rating. For more information visit: www.EngGeoMB.ca/CBACanadianEnvironment

MANUAL OF ADMISSIONS UPDATES

In December 2024, the Association updated the Manual of Admissions based on work and recommendations of the Manual of Admissions Task Group established by Council. The Manual of Admissions describes the requirements for professional registration and licensure including education and experience requirements. Updates include changes to the academic qualification criteria for first-time engineering, first-time geoscience, and specified scope of license applicants.

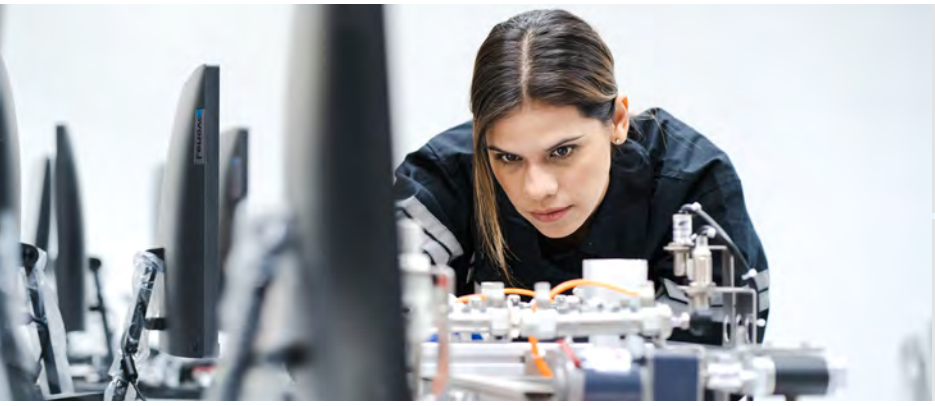
In addition, information about the new Competency-Based Assessment (CBA) guides, as well as English language and good character requirements, and new international mobility and intern mobility application types are also included. The updated Manual of Admissions is available at:
www.EngGeoMB.ca/PDF/Admissions/ManualOfAdmissions.pdf

NEW INTERIM ACADEMIC CRITERIA FOR FIRST TIME APPLICANTS

The updated Manual of Admissions includes new academic qualification requirements for first-time engineering and first-time geoscience applicants who are pursuing professional registration. These new criteria are intended to align with other Canadian regulator requirements and are interim until the Manual of Admissions Task Group completes its work on more comprehensive academic qualification requirements to include confirmatory program and exam options and to consider applicants with non-accredited degrees but have professional experience. Consultations on the academic qualification requirements will be conducted in early 2025 with the membership and other regulators and will be posted on the EngGeoMB website.

FOR **ENGINEERING:**

The new academic interim criteria require that engineering applicants complete either a four-year degree from a program accredited by Engineers Canada's Canadian Accreditation Engineering Board (CEAB) or an engineering program accredited by a signatory of the Washington Accord. The Washington Accord is an international agreement between bodies responsible for accrediting engineering degree programs. An applicant with a post-graduate degree in engineering from a Canadian university with an accredited undergraduate program or from an institution from a Washington Accord signatory, in addition to a four-year bachelor's degree is also eligible. However, the post-graduate degree must be in a closely related engineering discipline to the bachelor's degree. If an applicant does not have one of these criteria, they will be required to complete a confirmatory program.



LEARN MORE ABOUT
ENGINEERS CANADA ACCREDITED ENGINEERING PROGRAMS:

https://EngineersCanada.ca/Accreditation/Accredited-Programs

LEARN MORE ABOUT THE
WASHINGTON ACCORD:

www.InternationalEngineeringAlliance.org/Accords/Washington/

FOR **GEOSCIENCE:**

Because there is no accreditation process for geoscience programs, the Association and other Canadian regulators rely on Geoscientists Canada's Geoscience Knowledge and Experience Requirements (GKE). The new academic criteria require that applicants complete a post-secondary program of at least four years in geoscience that complies with the coursework requirements of the GKE. Compliance can be achieved through a combination of undergraduate and post-graduate coursework. If an applicant does not meet the knowledge requirements, they will need to complete a confirmatory program.

LEARN MORE ABOUT THE *GEOSCIENCE KNOWLEDGE* AND *EXPERIENCE (GKE) REQUIREMENTS FOR PROFESSIONAL REGISTRATION IN CANADA* AT:

https://GeoscientistsCanada.ca/Publications.PHP

MORE INFORMATION ABOUT **FIRST-TIME ENGINEERING AND GEOSCIENCE APPLICANT REQUIREMENTS** IS AVAILABLE AT:
https://www.EngGeoMB.ca/Interns.html

CONFIRMATORY PROGRAM OPTIONS:
https://www.EngGeoMB.ca/ConfirmatoryProgram.html

NEW **APPLICATION TYPES**

New application types in the Manual include:
1) Intern applicants who are EITs or GITs with other Canadian jurisdictions (Canadian intern mobility);
2) International engineering mobility for those applicants holding the IntPE and APEC Engineer designations; and
3) Scope change for existing specified scope of practice licensees who want to request a change to their approved scope of practice.

Learn more about application types at: www.EngGeoMB.ca/ApplicantTypes

PRACTICING ENGINEERING INTERNATIONALLY & THE ENGINEERS CANADA MOBILITY REGISTER

Professional engineering members of the Association (P.Eng.) who are interested in practicing internationally may wish to consider obtaining the IntPE and APEC Engineer (Canada) designations.

By joining the Engineers Canada Mobility Register, professional engineers licensed in Canada can use the APEC Engineer and IntPE (Canada) designations to show that they meet the standard of registration and are prepared to practice independent engineering internationally. They may also experience faster registration in some international jurisdictions. Application to the mobility register is free and uses a self-assessment process.

Starting January 2025, Engineers Canada is using a new online system to apply for and maintain registration on the Engineers Canada Mobility Register. To review the national register, application criteria or to apply, visit: https://EngineersCanada.ca/Services/Mobility-Register

2024 ANNUAL GENERAL MEETING

On Thursday, October 24, 2024, Engineers Geoscientists Manitoba held the 2024 Annual General Meeting at the Fort Garry Hotel with voting and non-voting participants attending both in-person and online. Reports and draft minutes from the meeting can be found on the website at www.EngGeoMB.ca/AGM.html

The Association's Council acts in the name of, and on behalf of, Engineers Geoscientists Manitoba to exercise all the powers, authority, and privileges conferred to the Association through *the Engineering and Geoscientific Professions Act*. The Association welcomed David Amorim, P.Eng., as the new Association President for 2024-2025. It was announced that three professional engineers and one professional geoscientist were elected for a two-year term:

- Kaitlin Fritz, P.Eng., FEC
- Alan Pollard, P.Eng.
- Julia Singh, P.Geo.
- Lisa Thomson, P.Eng.

SCRUTINEERS REPORT

The ballots on the voting for the By-law changes were counted in accordance with By-law 16.6.10 Counting of Ballots, commencing at 12:05 p.m. on Friday, October 18, 2024.

Total number of professional members eligible to vote: 6,797
Percentage of eligible professional members that voted: 11.4%

BY-LAW PROPOSALS	PASS/FAIL	FOR	AGAINST	ABSTAINED
By-law 1.1 Definition of an Officer	PASS	672	48	49
By-law 4.19 Chair's Participation	PASS	591	117	61
By-law 9.1.3 Senior Members	PASS	660	60	49
By-law 10.1 Dues and Fees	PASS	616	84	69
By-law 15.7.2 Access to a professional members disciplinary file	PASS	669	46	54
By-law 18.2 Liability insurance requirements professional members, temporary licensees, and SSPL	PASS	532	150	87
By-law 19.2 Paying panel members for long disciplinary hearings	PASS	597	106	66
By-law 19.2 Salary for CEO and Registrar	PASS	566	118	85
New By-law Minimum time for expert reports	PASS	640	56	73

MEET THE NEW ASSOCIATION PRESIDENT:

DAVID AMORIM, P.ENG.

BY C. LAO ROUSSEAU

David Amorim has had an interest in the construction industry for as long as he could remember, but there were three main factors that aided in planting the seed of engineering in his head: the Career Trek program, his father who works for a local contractor, and the various drawings he often left lying around the house for the projects he was working on.

"Being Portuguese immigrants who moved to Canada to provide their family with a better life, my parents have always pushed for a strong education," said David. "In Grades 5 and 6, I participated in a career exploration program called 'Wonder of Work' put on by Career Trek... and I fondly recall my career lessons on engineering".

Now David is not only the Board Chair of the local non-profit Career Trek but has also taken on the role as the newly elected EngGeoMB Association President for the 2024-2025 year.

David obtained his Bachelor of Science (Civil Engineering) in 2013 and completed his Master of Science in 2016, both from the University of Manitoba. Additionally, he started at Dillon Consulting Limited as a summer Co-op student in 2010.

"Today, I am a Partner at the firm, delivering transportation (structures) projects across Canada with a focus on project management. In recent years, I have developed an interest and specialty in northern transportation engineering and currently lead our northern transportation practice having completed many projects across the Northwest Territories and Nunavut."

In 2022, David first ran for a position with the EngGeoMB Council, and prior to this, he volunteered with the Association during events like National Engineering and Geoscience Week. Priding himself on the importance of community, David also took on the role as the 'Engineer in Residence' at West St. Paul School with the national non-profit Engineers of Tomorrow.

Continuing his drive for leadership, his newest role as the Association's 105th President allows David to advance the various transformative initiatives the Association has on the go: "Particularly the complete Act re-write project and the major governance updates including the creation of a new strategic plan for the Association this year".



"[On a larger scale], I hope that Engineers Canada can make significant advancements in the harmonization of the various regulators across Canada. Having been registered as a P.Eng. in seven provinces/territories, it would be an understatement to say that each regulator I've interacted with does things a little differently," mentioned David.

"It is due time for harmonizing key aspects of our profession (licensure, continuing professional development, etc.) and I am hopeful that we will get there in the near future."

It's imperative to note that one of David's favourite parts of his career is the closely-knit team environment; working alongside others and focusing on bettering society through engineering.

"Engineering is such a rewarding profession! I love the transformative projects that we get to work on that have a direct and tangible impact on society... I also love the significant team effort that goes into successfully completing these projects," he said with a smile.

"While I'm sure there are many great professions out there, and some that may very well offer the same fulfillment, I am proud to call myself a professional engineer."

MEET THE NEW COUNCIL MEMBERS

STEVEN BRENNAN

APPOINTED COUNCILLOR
(2024 - 2026)

DEGREE(S) AND DISCIPLINE
The University of Manitoba, Bachelor of Arts 1986; Bachelor of Laws 1989; Called to the Manitoba Bar in 1990.

YEARS OF EXPERIENCE AND AREA OF PRACTICE/SECTOR OF WORK
I have been practicing law for 35 years and specialize in trial and appellate litigation. I am the principal and senior partner of Brennan Partners LLP. I have appeared as counsel at all levels of Court in the provinces of Manitoba, Saskatchewan, and Ontario.

WHAT PUT YOU ON THIS CAREER PATH?
I chose the practice of law before I understood what it meant to be a lawyer at or about age 11. The opportunity to serve the public as an advocate has been the privilege of my lifetime.

WHY I CHOOSE TO SERVE ON COUNCIL
Having represented several engineers in a professional way, I was asked if I would be agreeable to serving on the EngGeoMB Council. I consider this request to be an honour and was pleased to accept.

MY BIGGEST ASSET
Perhaps the ability to problem solve and I bring a broad range of knowledge in many areas of the law.

WHAT IS ONE THING THAT MOST PEOPLE DON'T KNOW ABOUT YOU?
I look forward to a mutually rewarding relationship with the EngGeoMB going forward.

KAITLIN FRITZ, P.ENG., FEC

ELECTED COUNCILLOR
(2024 - 2026)

DEGREE(S) AND DISCIPLINE
I have a Bachelor of Science in Civil Engineering (2012) and a Masters of Structural Engineering (2021), both from the University of Manitoba.

YEARS OF EXPERIENCE
I have spent the bulk of my career at Manitoba Hydro, first as a structural engineer designing transmission lines and structures, and now as the Section Head of Asset Information and Standards.

WHAT PUT YOU ON THE PATH TO ENGINEERING?
Kicking off my last year of high school, the vice principal was busy meeting with all the soon-to-be graduates to make sure we had our credits in order. As I sat outside the vice principal's office, I found myself between a couple of classmates. They casually mentioned they had applied to the Faculty of Engineering. "Engineering? What's that?" I asked, genuinely curious. They went on to describe a career that involved designing structures and hanging out on construction sites—basically my dream job! I just hadn't known that the title for that role was "engineer".

WHY I CHOOSE TO SERVE ON COUNCIL
I have always been a dedicated volunteer, both in my personal and professional life. When I began working in the industry, I saw a unique opportunity to become the Association's first-ever Member-in-Training (Intern) representative to Council. I thoroughly enjoyed the impactful work I was involved in and eagerly anticipated rejoining the Council as a professional member after gaining more industry experience.

Since then, I have continued to volunteer for the Association's committees and other organizations such as the Manitoba Hydro Professional Engineers Association, Friends of Engineering, and the Manitoba Gymnastics Association. As some of my other volunteer roles are starting to wind down, I feel ready to return to Council and share the experience and perspectives I have gained over the last decade.

MY BIGGEST ASSET
I believe I bring a unique blend of experiences to the table. My background in design, coupled with extensive volunteer experience, and my current asset management leadership role has provided me with a diverse skill set. This journey has equipped me with a strong leadership voice, problem-solving skills, and a team focused mentality. All of which I feel will allow me to contribute to Council, helping us tackle many of today's challenges within the engineering community.

WHAT IS ONE THING THAT MOST PEOPLE DON'T KNOW ABOUT YOU?
I have a passion for cycle touring. Whether it's building my bicycle from the ground up or training for my next world traveling adventure, I find it incredibly rewarding and a great way to unwind, it brings a lot of joy and balance to my life.

JUSTIN REMPEL

APPOINTED COUNCILLOR
(2024 - 2026)

DEGREE(S) AND DISCIPLINE
I went to school at the University of Manitoba and have a Bachelor of Commerce (Honours).

YEARS OF EXPERIENCE
My entire career has been in the area of human resources specializing in labour relations. I have worked in a variety of roles with the Province of Manitoba, the Manitoba School Boards Association, and the BC Public Schools Employers Association. My primary focus has been serving as a lead negotiator for or on behalf of school divisions. This past year, I negotiated the first ever Manitoba provincial teacher collective agreement which was a historic accomplishment in the education sector.

WHY I CHOOSE TO SERVE ON COUNCIL
I was looking for an opportunity to provide my background in human resources to another sector. Over the years, I was familiar with EngGeoMB through acquaintances and when I heard they were looking for appointed board members I put my name forward. This is an opportunity to share my experiences working with many iterations of boards and also an opportunity to learn how another professional association operates.

MY BIGGEST ASSET
I strongly believe in the role of governance of a board and keeping operations at the staff level. I believe I can bring my experiences working with boards, my experience working for and with government, and my knowledge of human resources to help with the EngGeoMB Council.

WHAT IS ONE THING THAT MOST PEOPLE DON'T KNOW ABOUT YOU?
I am very interested in design, but I'm not a proponent of design over function. The abilities of engineers to execute function and form to facilitate design is something that I greatly admire.

JULIA SINGH, P.GEO.

ELECTED COUNCILLOR
(2024 - 2026)

DEGREE(S) AND DISCIPLINE

I graduated from the University of Manitoba, with a Bachelor of Science in Geological Sciences, from the Clayton Riddell Faculty of Environment, Earth and Resources in 2008.

YEARS OF EXPERIENCE AND AREA OF PRACTICE/SECTOR OF WORK

I have been a geoscientist working in the exploration and mining industry for 16+ years. My expertise is mainly in early grassroots exploration focused on compiling, collecting, and analyzing geological data to help identify new areas to explore by applying my geological knowledge. I have primarily worked in the Canadian Shield in Northern Saskatchewan, Manitoba, and Ontario as well as British Columbia exploring for gold, lithium, and base metals such as copper, nickel, cobalt, and zinc.

WHAT PUT YOU ON THE PATH TO GEOSCIENCE?

I was fascinated learning about rocks, minerals, and natural earth processes and I ultimately changed course and pursued my geoscience degree instead. Although geoscience wasn't my original plan, my parents always remind me that I loved collecting rocks as a kid, and that my favourite topics in school were the ones on dinosaurs, volcanoes and anything nature related. I wanted to be a geoscientist all along but just didn't know it yet!

WHY I CHOOSE TO SERVE ON COUNCIL

I decided to run for Council as I wanted to ensure that there was a geoscience perspective and I want to support the Association with encouraging more women to enter geoscience and engineering, bring public awareness to the benefits of these careers, and support the Association and members.

MY BIGGEST ASSET

I bring a unique perspective as a female executive geoscientist. In my current role working in a consulting firm, I am not only involved in technical geoscience work but also building partnerships and supporting strategic planning of the business. This expertise lends well to serving on Council where I need to apply similar critical thinking, decision making and communication skills.

WHAT IS ONE THING THAT MOST PEOPLE DON'T KNOW ABOUT YOU?

Being a geoscientist is fun and full of adventure. From using cool modes of transportation like helicopters, float planes, and boats, to visiting unique and remote setting within our province, country, and globally, there is always something new to see and something new to learn. I am very passionate about what I do!

2025 ANNUAL GENERAL BUSINESS MEETING

SAVE THE DATE

The 2025 ***Annual General Meeting*** of Engineers Geoscientists Manitoba is scheduled to be held at 2:30 p.m. on **Thursday, October 23, 2025**, at the *Centro Caboto Centre, 1055 Wilkes Ave., Winnipeg, Manitoba.* Virtual attendance will also be available. Interns, professional members, and councillors are entitled to be present; any other person may be admitted by invitation of the President or with the consent of those present who are entitled to vote, as per By-law 13.5.

Registration is required to attend this event for voting authentication, and will open in the summer. Reports and supporting documents for the Annual General Meeting will be posted on the AGM webpage in due course.

In-person attendees of the 2025 Engineers Geoscientists Manitoba Annual General Meeting are invited to register for the Recognition Lunch and Award Ceremony, which will take place prior to the AGM, in the same room. Please note that spots at this event will be limited and early registration is encouraged. More information will be available closer to the event.

2024 AWARDS CEREMONY

On Thursday, October 24, 2024, before the 2024 Annual General Meeting, nine awards were presented to outstanding individuals and companies at the Annual Awards Ceremony helf at the Fort Garry Hotel. Master of Ceremonies was Dean Jenkinson, and music and entertainment was provided by the Big City All Star Band.

At the awards ceremony, Dean captivated the audience with a personalized touch, performing a custom song written specifically for the Association. His unique blend of humor and talent added a special flair to the ceremony, making it a memorable highlight for all in attendance.

Special interactive displays were available for attendees from the Price Faculty of Engineering student groups including the UM Robots Team, UM Unmanned Aerial Systems, UM Steel Bridge Team, Wind Energy Design, and UMSAE Formula Electri, Aero, and Baja teams.

The Association would like to thank everyone who helped make this event so successful; we look forward to the 2025 award ceremony - see you there!

Dean Jenkinson

UM student display

Past President, Kathryn Atatmanchuk, P.Eng. and the Student Award Winners

FEC DESIGNATIONS

FEC designations were additionally given to nine recipients. The Engineers Canada Fellowship program honours individuals who have given noteworthy service to the engineering profession through their work with either Engineers Canada or the provincial and territorial engineering regulators. Engineers Geoscientists Manitoba proudly nominated the 2024 recipients as their volunteer service with the Association has passed 10 cumulative years.

- Vaibhav Banthia, P.Eng., FEC
- Hugo Cea Canas, P.Eng., FEC
- Ethel Fernandez, P.Eng., FEC
- Henry Jason Kuyp, P.Eng., FEC
- Trevor Lytwyn, P.Eng., FEC
- Joanne Reinsch, FEC(Hon)
- Kevin Sim, P.Eng., FEC
- Ronald Sugden, P.Eng., FEC
- Daniel Zubert, P.Eng., FEC

2024 TEAM ACHIEVEMENT AWARD

St. Andrews Lock and Dam Bridge Deck Replacement Project - Associated Engineering

Officially opened in 1910, the St. Andrews Lock and Dam is the only surviving Caméré moveable dam in the world and was officially declared a Canadian National Historic Site in 1990. Public Services and Procurement Canada retained Associated Engineering to provide full engineering services for the planning, development, and implementation of the deck replacement and rehabilitation measures for this historic Lockport facility.

Following a comprehensive detailed inspection by Associated Engineering, it was determined that the existing bridge deck on the main truss spans was past its useful life span and needed replacement. Work included functional upgrades to the bridge deck by incorporating standard driving lane widths as well as a separated sidewalk, strengthening the structure to increase the load capacity of the bridge to meet full highway load requirements, rehabilitating the structure to extend its useful life span, and accessibility upgrades to the facility.

Strengthening and modifying a 100-year-old steel structure called for thorough research and planning regarding materials and technologies. Meticulous planning and execution eventually resulted in preserving the original historical aesthetics of the structure and integrating engineering expertise ensured that the improvements to the existing structure would not just preserve its heritage, but also enhance its aesthetic appeal and functionality. The project required the right blending of a broad range of engineering disciplines including structural, civil, transportation planning, electrical, geotechnical, and hydrotechnical engineering. Other professionals and experts that were crucial to assisting the ingenuity of the project were environmental experts, archaeologists, heritage architects, metallurgical specialists, and professional cost consultants.

This project is notable for the number and diversity of critical stakeholders involved, including heritage experts, federal, provincial, and municipal government agencies, First Nations, the local community, and other representatives. A collaborative spirit made the project a positive experience for all stakeholders. The collaboration between all parties on the bridge deck replacement project has deepened the understanding to those involved of the historical significance of the St. Andrews Lock and Dam area, and is an example for collaboration and partnering on projects between Public Services and Procurement Canada and the Indigenous Rights Holders.

In recognition of the engineering excellence demonstrated in integrating ingenuity in the engineering process for the St. Andrews Lock and Dam Bridge Deck Replacement Project, Engineers Geoscientists Manitoba is pleased to present the 2024 Team Achievement Award to Associated Engineering.

2024 INNOVATION AWARD

Manitoba Hydro's OPBIFF Team

The Operational Physically-Based Inflow Forecasting Framework (OPBIFF) project has successfully modernized Manitoba Hydro's forecasting system by implementing physically-based hydrological models into the Flood Early Warning System (FEWS) forecasting platform.

This system fosters innovation by enabling Manitoba Hydro's Hydrology and Climate Section to rapidly test and implement customized features on their large, diverse, and remote watersheds.

The FEWS is an off-the-shelf platform that was designed and built by Manitoba Hydro professional engineers to be completely customized to their needs and directly integrates into their Decision Support System for reservoir management.

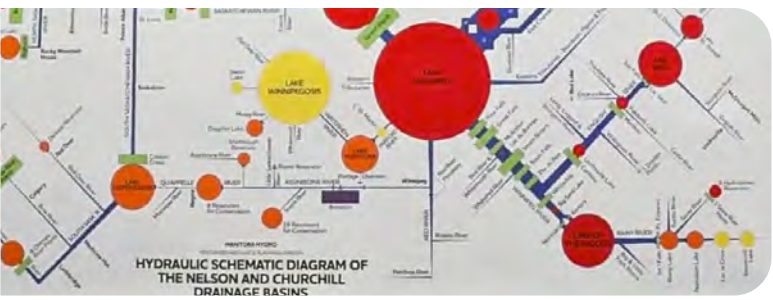
A primary factor in the design is to be flexible and adapt to future needs, including incorporation of new features, models, and adaptors. A key innovation of OPBIFF is the direct use of multiple sources of uncertainty in producing and communicating flow forecasts through the platform.

This includes merging uncertainty from Environment & Climate Change Canda's weather models, historical weather uncertainty spanning the past 40-yeasrs for seasonal forecasts, and hydrological model uncertainty.

The innovative method to integrate these sources of uncertainty in an operational system is novel and has gained interest from other utilities and forecasting centers for their own implementation.

OPBIFF is an example of "innovation by design", a primary factor in the design is to be flexible and adapt to future needs, including incorporation of new features and models. Since its implementation in 2021, this system has been used to help Manitoba Hydro to navigate floods and droughts. The team continues to expand OPBIFF to implement advanced tools to improve forecast confidence. OPBIFF has modernized Manitoba Hydro's reservoir forecasting, helping Manitoba Hydro better understand watershed conditions and to capitalize on weather-related opportunities, resulting in significant economic benefits to the people of Manitoba.

In recognition of the innovation and engineering ingenuity demonstrated in their OPBIFF project, Engineers Geoscientists Manitoba is pleased to present the 2024 Innovation Award to Manitoba Hydro's OPBIFF project.



HYDRAULIC SCHEMATIC DIAGRAM OF THE NELSON AND CHURCHILL DRAINAGE BASINS

2024 STUDENT ACHIEVEMENT AWARDS

Experimental and Numerical Analysis of Bridge Superstructures in Cold Climates - Anthony Guerreiro

With research being very minimal in effects of cold environment exposure to steel I girder and reinforced concrete deck composite bridge structures, Anthony aimed at designing and testing a structure that could be used as a baseline for future work.

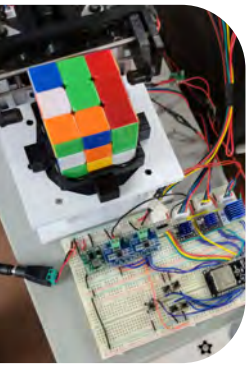
Anthony's objective was to construct a replicable 1:6 scale model of a typical steel I girder bridge structure and subject it to ultimate structural failure to determine baseline physical behaviors of the structure. These behaviors will later be used for comparison with an identical structure tested at a much colder temperature to determine physical the effects of cold exposure to bridge structures.

In order to do this project, Anthony used various sensors and acquisition techniques for this work including concrete and steel strain gauges and LVDT (linear variable displacement transformers) monitors. He additionally worked on creating a scaled downloading device which represents the design truck used in the AASHTO LRFD bridge design manual (used by Manitoba Transportation and Infrastructure).

Anthony modeled and created a finite element model and represented the real-world failure modes, distribution factors, modulus of elasticity and deflections. He found that the finite element model was weaker than the real-world tests which could be attributed to the model being highly simplistic in nature and the steel materials used being stronger than specified. With better material details specified in the finite element model, a closer match to the experimental strength capacity of the bridge could be achieved.

Anthony's work is already being used for additional experiment setups in a larger project to understand environmental effects on steel I girder and reinforced concrete deck composite bridge structures colder temperatures.

The Design and Implementation of Cubert: An Intelligent Rubik's Cube Solving Robot - Noah Park, Andrew Stoyko, Duy Anh Nguyen, Luc Maxwell, Matthew Mora, and Bruno Di Gaetano



With the advent of artificial intelligence getting better every day, this project team wondered, "Can artificial intelligence solve a Rubik's Cube?"

Solving a Rubik's Cube requires skills such as spatial intelligence, pattern recognition, and fine motor dexterity, making it often deemed as a colloquial test of intelligence. These characteristics, when put together, create an interesting set of benchmarks to overcome. Thus, as a capstone project, the project team decided to create a robot that can physically solve 3x3 Rubik's Cubes. Cubert is built upon three main modules: Sensing, responsible for the determination of the Rubik's Cube state (i.e., the cubelet colors on each face of the cube). Computation, responsible for determining the solution sequence using a machine learning model. Actuation, responsible for the physical manipulation of the Rubik's Cube.

Cubert solves a Rubik's Cube by first capturing the cube state with the Sensing Module, which uses pictures and image processing tools to determine the state of the Rubik's Cube (i.e., the colors and positions of those colors of each cubelet on each face of the cube). Then, the state information is encoded and passed to the Computation Module, which uses a trained reinforcement learning model to garner a solution sequence to solve the Rubik's Cube. Finally, this solution sequence is encoded to the motors of Cubert to begin manipulating the physical cube to the solved state.

Cubert can identify the cube state 100% of the time, garner a solution sequence within 2 minutes to solve the Rubik's Cube, and actuate moves to solve the physical cube within 1 to 2 minutes dependent on the severity of the initial scrambled state of the Rubik's Cube.

The future consideration for Cubert is to continue to improve the machine learning model so that it can solve Rubik's Cubes in more severely scrambled states. Moreover, the team hopes to refine the physical design to the point where it can be handled like a consumer product. That is, have Cubert be a plug and play device.

2024 EARLY ACHIEVEMENT AWARD

Vikram Banthia, Ph.D., P.Eng.

Vikram Banthia, Ph.D., P.Eng., received his bachelor of science in mechanical engineering (Gold Medal) from the National Institute of Technology, Raipur (India), his master of science degree in 2011 and a doctorate of philosophy in 2020 from the University of Manitoba, specializing in the field of robotics and automation. Vikram is currently pursuing an MBA from the Asper School of Business.

In his current role, as Director of the Price Institute of Advanced Manufacturing and Mechatronics at Red River College Polytechnic, Vikram spearheads the strategic vision and provides operational management of training programs and cutting-edge research in the adoption of digital technologies such as robotics, automation, additive manufacturing, and artificial intelligence. Vikram is involved in the creation of two post-graduate diploma programs within the training program and is dedicated to a robotics/automation mock-up/testing space called the Centre for Automation and Manufacturing Technology Transfer, aimed at facilitating affordable applied research for small and medium enterprises in Manitoba.

Vikram's previous work experiences focused on transforming businesses through the strategic implementation of automation solutions. Vikram has worked in project management, robotics, and lean manufacturing roles for Bayer Crop Science, where he was involved in the development of optimal growth chambers for canola, and Elmer's Manufacturing in Altona, where he developed/invented a patented grain cart (trailer) with automated loading assistance.

As a Robotics Researcher at the University of Manitoba, Vikram developed an innovative neurosurgical manipulator and a teleoperated hydraulic robot for live-line maintenance. He also collaborated closely with Winnipeg Police Crime Stoppers to pioneer the development of a humanoid robot, which then served as a brand ambassador for the Winnipeg Police.

Vikram passionately promotes engineering and science as a career and shares his personal journey as an engineer at events such as Red River College's Open Doors, and at hands-on workshops and demonstrations for high school students. Vikram has presented at international conferences and has published many academic and technical papers.

Vikram actively volunteers and has held leadership roles for the India Members Chapter of Engineers Geoscientists Manitoba and has volunteered in numerous community organizations such as Siloam Mission, Harvest Manitoba, Habitat for Humanity, Agape Table, Rotary Club, and the India Association of Manitoba. Vikram has played a pivotal role in organizing and participating in events aimed at supporting various causes close to his heart, including education and healthcare access.

In recognition of exceptional achievement at the start of their career, Engineers Geoscientists Manitoba is pleased to present the 2024 Early Achievement Award to Vikram Banthia, Ph.D., P.Eng.

2024 CHAMPION OF ENGINEERING EDUCATION AWARD

Lia Wright, P.Eng., B.Ed.

Lia Wright, P.Eng., B.Ed. is a graduate of the University of Manitoba Price Faculty of Engineering (Mechanical Engineering, 2004).

During her time in the faculty, she was inspired to enhance the diversity of the student population and became involved in outreach. She eventually became the Engineering Outreach Coordinator, creating presentations for high school students that were informative, fun, and engaging. Her goals were to make the subject matter less intimidating and more relatable to a wider array of students, as well as to increase female enrolment the following year.

Throughout her career, she volunteered in schools at every opportunity to judge science fairs, participate in S.T.E.M. weeks, develop engaging S.T.E.M.-based games, and coach sports teams. In her spare time, Lia created a S.T.E.M.-loving alter ego named "Nelly Neutron" who toured Manitoba and Alberta. She introduced the ideas of experimentation and observation and showed kids aged four through seven that chemistry and physics are accessible and for them.

This passion led Lia to earn a Bachelor of Education from the University of Manitoba in 2021. Upon graduation, she was awarded the Gold Medal in Education, the Marguerite Wallman Prize for Excellence in S.T.E.M., the Dr. Robert Fletcher Medal and Prize in Education, and the Truesdale Medal and Prize. She now works as a 7th grade science, math, and design teacher and continues to inspire students of all backgrounds to consider engineering and other S.T.E.M.-based careers.

In her time teaching, Lia's passion has shone through all that she does. Whether she is organizing a Mars Habitat Design Competition judged by industry engineers, inviting a NASA astronaut to speak to the school, inventing effective S.T.E.M.-based games, enhancing 2SLGBTQI+, cultural minority, and female involvement in S.T.E.M. activities, or coaching sports teams and relating everything back to physics, she approaches everything with a zeal that is unmatched. It is worth noting that upon announcing the winners of the Mars Habitat Competition, Lia's students were beyond thrilled to find out that the prize was a tour of the Price Faculty of Engineering. Their excitement spoke volumes about the positive messaging they had received about the discipline, and the faculty, along with all practicing engineers, have Lia to thank for that.

In recognition of her dedication to the promotion of S.T.E.M. topics among youth, and her desire to inspire a new and diverse generation of engineers, Engineers Geoscientists Manitoba, together with the Faculty of Engineering at the University of Manitoba, is pleased to present the 2024 Champion of Engineering Education Award to Lia Wright, P.Eng., B.Ed.

2024 JUDITH WEISZMANN WOMEN IN ENGINEERING CHAMPION AWARD

Ethel Fernandez., P.Eng., FEC

We are delighted to recognize Ethel Fernandez, P.Eng., as the recipient of the Judith Weiszmann Women in Engineering Champion Award. This award is presented to Ethel in recognition of her exceptional engineering accomplishments, her role as a community leader, and her commitment to advancing and supporting women in the field of engineering.

Ethel's achievements in the workplace are noteworthy. As the first Filipino woman to hold an engineer position at the Royal Canadian Mint in Winnipeg, she has inspired others from diverse backgrounds to pursue engineering careers.

In service to the profession, Ethel has made a substantial impact. Her tenure as President of the Filipino Members Chapter was marked by increased public engagement and membership growth. She successfully collaborated with other cultural chapters, enhancing camaraderie, and expanding participation in engineering-related activities. Her efforts to streamline scholarship processes have provided crucial support to aspiring engineers, ensuring their progression in the profession.

Outside of her professional achievements, Ethel has proved a strong commitment to community service. She started and continues to lead volunteer efforts with Winnipeg Harvest and the Christmas Cheer Board through the Filipino Members Chapter, benefiting local communities. Her contributions extend globally through her column in the Pilipino Express, which promotes engineering as a choice career and highlights the achievements of Filipino engineers.

Despite a fear of public speaking, Ethel has actively taken part in events to share her experiences and motivate others. Her contributions as a speaker at various engagements have positively affected aspiring engineers and professionals within the community. Her leadership during her presidency of the Filipino Members Chapter exemplified her vision and empathy, leaving an impact on the engineering community.

Ethel Fernandez's substantial achievements and dedication to advancing women in engineering make her a deserving recipient of the Judith Weiszmann Women in Engineering Champion Award. Her leadership and advocacy have enriched the engineering profession and empowered individuals to pursue successful careers.

Engineers Geoscientists of Manitoba proudly recognizes Ethel Fernandez for her outstanding contributions, honoring her as a role model who embodies the principles of Judith Weiszmann, inspiring future generations of engineers to strive for excellence and inclusivity in the field.

2024 OUTSTANDING SERVICE AWARD

Efrem Teklemariam, P.Eng., FEC

Efrem Teklemariam earned his Master's degree in Water Resources Engineering from Delft Technical University in the Netherlands in 1988. He later completed another Master of Science in Water Resources Engineering from the University of Manitoba in 1999. Additionally, he obtained a Master Certificate in Project Management from York University in 2003. Since 1996, Efrem has been a Professional Engineer (P.Eng.) with Engineers Geoscientists Manitoba and received the Fellow of Engineers Canada (FEC) recognition in 2013.

Efram began his volunteer work with Engineers Geoscientists Manitoba in 2003, starting with the Academic Review committee (2003-2014), then serving on the Nomination Committee (2009 and 2023), and the EngGeoMB Centennial Task Group (2016-2019). He was an Association councillor from 2018-2022 and continues to be on its Finance Committee. Since 2019, he has been a member of the Manitoba 2030 Coalition Committee.

From 2012-2015 he served on Engineers Canada Accreditation Committee. Efrem's professional volunteer work extends beyond EngGeoMB, including his involvement with the Friends of Engineers at the Price Faculty of Engineering since 2011. He is one of the founding members of the International Educated Engineering Qualification program (IEEQ), where he provides industrial perspectives and guest lectures on Civil Engineering-Hydrology to IEEQ students. He is also a founding member of the Ethio-Eritrean chapter and served on the board of the Citizenship Council of Manitoba from 1996 to 2003.

Efrem joined the Climate Change & Hydrology Committee of the Natural Science & Engineering Research Council of Canada in 2011. In this capacity, he reviews and provides input into proposed physical projects & their relevance to the advancement of hydrological engineering in climate science.

His work at Manitoba Hydro has influenced study program at University of Manitoba and work of the broader consulting community in Manitoba. He serves on Global Water Futures Advisory Panel at University of Saskatchewan, supporting prairie watershed studies.

Efrem enjoys playing soccer and has been founding member and president of the Alena Soccer Association since 2007. He has also helped establishing St. Michael Tewahdo Orthodox Church in 2007 and has volunteered in its various committees.

In recognition of his commitment to the Association, the profession, and the public, Engineers Geoscientists Manitoba is pleased to present the 2024 Outstanding Service Award to Efrem Teklemariam, P.Eng., FEC.

2024 TECHNICAL EXCELLENCE AWARD

Dr. Marolo Alfaro, Ph.D., P.Eng.

Dr. Marolo Alfaro, a geotechnical engineering professor, has made significant contributions to the field. His work spans geosynthetics, ground improvement, and permafrost engineering. Marolo's legacy extends to stabilizing Winnipeg's riverbanks and protecting the city's century-old aqueduct from ground vibrations.

His inventive contributions include developing adaptive methods for Northern infrastructure resiliency, understanding and adapting strategies to address climate-induced permafrost degradation, examining the instability of earth fill dams at hydroelectric generating stations, improving the design, construction, and maintenance procedures of road embankments built on peat foundations and providing design and construction guidelines for rockfill columns for Winnipeg's riverbanks.

Marolo's creative application of engineering and geoscientific knowledge has transformed Arctic transportation infrastructure. His groundbreaking methods, tested on the Inuvik-Tuktoyaktuk Highway, address unique challenges such as: Wicking Geosynthetics and Geofoam-Geogrid Composites, Unprecedented Arctic Highway, and using an innovative approach of combining geofoam insulation and geogrid reinforcement to prevent ice-wedge thaw induced embankment collapse.

Marolo's innovative adaptation methods address the impact of climate warming on northern Canada's transportation infrastructure. These advancements ensure equitable access to resources and reliable, cost-effective services for economic and social development. His research strengthens Canada's Arctic presence by providing an all-season road to the Arctic coast. These projects enhance Canada's capacity to manage permafrost regions amid a changing climate, advancing both research and practice in cold regions engineering.

In southern Canada, Marolo's work yields cost savings in construction and maintenance while enhancing safety and structural integrity. His rockfill column methods stabilize riverbanks, safeguarding critical buried structures like aqueducts. Additionally, his research on clay seals informs safe decommissioning and closure of underground nuclear fuel waste repositories.

Marolo chairs the Canadian Geotechnical Research Board, driving research in geotechnical and geoscience fields. He served as Vice-President of the International Geosynthetics Society (USA and Canada Chapter) and contributed to the Canadian Geotechnical Society.

In recognition of his outstanding knowledge and visionary technical contributions to the fields of engineering and geoscience, Engineers Geoscientists Manitoba is pleased to present the 2024 Technical Excellence Award to Marolo Alfaro, Ph.D., P.Eng.

NEWS+NOTES

NEW MEMBER LUNCH

On October 22, 2024, and February 11, 2025, the Association welcomed new members to the Norwood Hotel for complimentary lunches and networking opportunities. Guests were invited to take pictures with the president and celebrate their newly acquired professional licence in Manitoba.

Congratulations to all!

New Members Luncheon - February 11, 2025

New Members Luncheon - October 22, 2024

WESTMAN CHAPTER: ACTIVE PROFESSIONAL DEVELOPMENT

In the fall of 2024, the Westman chapter held a professional luncheon with a guest speaker presenting on geotechnical design parameters on a major bridge construction project. The attendance was very positive with over 70+ members from across Manitoba in attendance.

2024 INGENIUM PROFESSIONAL DEVELOPMENT SEMINARS

2024 Ingenium
Where great minds meet to form great ideas

From November 19 - 21, 2024, Ingenium sessions ran daily between 9:00 a.m. and 4:00 p.m. The Ingenium Professional Development Seminars are the primary professional development series offered annually by Engineers Geoscientists Manitoba, featuring a wide variety of technical and soft skill topics of interest to members and non-members alike.

We would like to formally thank our generous sponsors for their contribution to this year's Ingenium sessions. The Ingenium Task group would also like to thank all the presenters and attendees of Ingenium 2024 for their support. The group is looking forward to planning Ingenium 2025 - *See you there!*

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2025 CURLING FUNSPIEL

Sixteen teams gathered at the St. Vital Curling Club in search of a fun afternoon, prizes, and their name on the trophy. Teams were also invited to dress up in creative outfits to show their enthusiasm and team spirit - congratulations to Price Industries Limited who won with their Hawaiian outfits, and Conviron who won with their bathrobes and shower caps outfits.

Teams played five two-end games and the top team ended with 61 points: Congratulations to Conviron for clinching the trophy! The Sports Committee would like to thank all participants for joining this year's Funspiel and helping to raise over $5,000 to support geoscience students at the University of Manitoba.

A big thank you to our sponsors:

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NOTICE

Under *The Engineering and Geoscientific Professions Act*

This Notice is provided in accordance with Section 36.2(1) of The Engineering and Geoscientific Professions Act.

This is Notice that on September 18, 2024, Dana G. Bell, P.Eng., was formally cautioned by the Association's Investigation Committee. The Formal Caution arises from Mr. Bell failing to field-verify the site conditions at a private residence in Winnipeg, MB before sealing the design and issuing drawings for permit and construction. The Investigation Committee determined that Mr. Bell's actions were not consistent with the Code of Ethics to "Hold paramount the safety, health and welfare of the public…", in this case the financial welfare.

Michael Gregoire, P.Eng., FEC
CEO & Registrar

NOTICE

Under *The Engineering and Geoscientific Professions Act and the Association's Discipline By-law*

This Notice is provided in accordance with Section 50 of The Engineering and Geoscientific Professions Act.

This is Notice that on August 22, 2024, Phillip M. Dorn, P.Eng., was issued a reprimand following a conviction on a charge of professional misconduct. The conviction arises from Mr. Dorn's involvement in providing a structural review and assessment of a property in Springfield, MB. In addition to the reprimand, the Discipline Panel ordered that Mr. Dorn pay costs in the sum of $5,000.00.

Full text of the Order of the Discipline Committee and the Reasons for Decision can be found on the Engineers Geoscientists Manitoba website.

Michael Gregoire, P.Eng., FEC
CEO & Registrar

NOTICE

This Notice is provided in accordance with Section 36.2(1) of The Engineering and Geoscientific Professions Act.

Pursuant to section 36.2(1) of the Act, the Investigation Committee has accepted the voluntary withdrawal from the right to practice by Kenneth P. Kapusniak in relation to a conviction registered by the Association of Professional Engineers and Geoscientists of British Columbia in a Consent Order dated November 23, 2023. The full text of the Order can be found on the EGBC website: **www.EGBC.ca**

Michael Gregoire, P.Eng., FEC
CEO & Registrar

NOTICE

Under *The Engineering and Geoscientific Professions Act* and the Association's Discipline By-law

This Notice is provided in accordance with Section 50 of The Engineering and Geoscientific Professions Act.

This is Notice that on April 23, 2024, Robert A McDonald, P.Eng., was issued a reprimand following a conviction on a charge of professional misconduct. The conviction arises from Mr. McDonald's involvement in sealing and submitting structural drawings for an addition to a building at 1717 Waverley St., Winnipeg, MB. In addition to the reprimand:

- Mr. McDonald must undergo a general practice review by a reviewer appointed by the Investigation Committee.
- Mr. McDonald shall pay 50% of the cost of the Practice Review.
- Mr. McDonald shall pay costs in the sum of $7,500.00.

Full text of the Order of the Discipline Committee and the Reasons for Decision can be found on the Engineers Geoscientists Manitoba website.

Michael Gregoire, P.Eng., FEC
CEO & Registrar

***CORRECTION:** THE NOTICES FOR **D.G BELL** AND **K.P. KAPUSNIAK** ARE NOT ORDERS OF THE DISCIPLINE COMMITTEE. THIS INFORMATION WAS MISTAKENLY INSERTED IN THE PREVIOUS ONLINE VERSION AND THE PRINTED ISSUE OF THE KEYSTONE PROFESSIONAL.*

Full text of the Order of the Discipline Committee and the Reasons for Decision can be found on the Engineers Geoscientists Manitoba website: www.EngGeoMB.ca/Discipline.html

CLOSING NOTES

GOOD CHARACTER: GOOD CITIZEN

BY A. RUALES, DIRECTOR OF PROFESSIONAL STANDARDS

The provincial government of Manitoba has recognized engineering and geoscience as professions, granting them the right of self-regulation. However, self-regulation heavily relies on public trust, which is usually based on the interpretation of character.

Good character includes qualities such as integrity, honesty, and trustworthiness, which are crucial for maintaining public confidence. EngGeoMB professionals must demonstrate and uphold these values to ensure the safety and well-being of society. This responsibility extends to both applicants for licensure and current registrants, who must consistently exhibit good character throughout their careers.

The fragile nature of public opinion and the importance of safeguarding life, health, property, economic interests, public welfare, and the environment stress the need for professionals to adhere to high standards of conduct. Self-regulation is effective only when the public trusts that professionals will act ethically and responsibly. Conduct unbecoming, which refers to actions contrary to the public interest and harmful to the profession's standing, must be avoided to maintain this trust.

In regulatory processes, assessing character involves various tools and methods, including character references, application forms, character-related questions, and criminal background checks. However, good character goes further; we all have a responsibility to society regardless of our profession. Among all the qualities that portray good character, such as trustworthiness, respect, responsibility, fairness, caring, and citizenship, citizenship is likely the one that appeals the most to our commitment to our community and city.

According to a National Survey (2011), "Canadians define citizenship as more than having a passport, obeying the law, and paying taxes. These are widely seen as key aspects of citizenship, but just as important are being active participants in one's community, helping others, and accepting differences."

> *"SELF-REGULATION IS EFFECTIVE ONLY WHEN THE PUBLIC TRUSTS THAT **PROFESSIONALS** WILL ACT **ETHICALLY** AND **RESPONSIBLY**. "*

Community participation takes many shapes. Most people identify voluntary work as a primary option (National Survey, 2011). For practitioners, voluntary work also counts as part of their Professional Development, under the category of Participation. Moreover, voluntary work can be done in an activity that is both meaningful and enjoyable such as mentoring less experienced professional members or coaching a minor league sports team.

Being kind and generous to others is also another way that Canadians perceive a good citizen (National Survey, 2011). For practitioners, this is seen in the way they interact and communicate with others, including peers. For instance, email communications should always be respectful, addressing technical or work concerns, and refraining from making judgmental statements about the person.

Good character is essential for self-regulation, particularly in professions that impact public safety and welfare. It involves a commitment to ethical behavior, integrity, and the courage to do the right thing. Furthermore, good character traits such as citizenship establish stronger connections with the community. As Cicero (106-43 BCE) said: "Within the character of the citizen lies the welfare of the Republic." Ironically, Cicero lived during the political crisis that led to the birth of the Roman Empire, showing us that taking our duty as good citizens lightly can have significant consequences.

More information on Good Character and its importance in Professional Practice can be found in the Good Character Guideline on our website, and practitioners are encouraged to complete the Good Character Online Learning Module.

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