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MEMORANDUM

ATTENTION	Senate	**DATE**	September 19, 2024
FROM	Dilson Rassier, Provost and Vice-President Academic, and Chair, SCUP	**PAGES**	1/15
RE:	Establishment of the Global Institute for Agritech (SCUP 24-36)		

At its meeting on September 11, 2024, SCUP reviewed and approved the establishment of the Global Institute for Agritech for a five-year term.

Motion: That Senate approve the establishment of the Global Institute for Agritech for a five-year term.

C: Valorie Crooks, Associate Vice-President, Research

SFU RESEARCH INSTITUTE APPLICATION

NAME OF INSTITUTE:

Global Institute for Agritech (GIA)

DESCRIPTION OF PROPOSED INSTITUTE:

Please include a statement of the Research Institute's special purpose and how its work aligns with University priorities and the VPRI Strategic Research Plan.

- Statement of Special Purpose:
The Global Institute for Agritech (GIA) will establish at Simon Fraser University (SFU) a leading institute for research and innovation in agricultural technology. The institute's multidisciplinary membership and advisory council will generate a new interdisciplinary approach to agritech, with the purpose of advancing research and facilitating collaborations across SFU and with its external partners. Responding to pressing global agricultural challenges arising from climate change, such as drought resilience and soil degradation, and food security issues, the Institute will focus on developing transferable and scalable solutions. In the first five years of its operation, the GIA will conduct cutting-edge research on innovative agritech solutions, focusing on precision farming, sustainable pest management, and crop diversification. By fostering strategic partnerships with industry leaders, academic institutions, government agencies, and partners, both within Canada and internationally, GIA seeks to create a collaborative ecosystem that promotes knowledge sharing, technological progress, and the practical application of research findings.

- Description:
i) Agritech research – The GIA will serve as a dynamic platform for students, researchers, and industry professionals to work together in pursuing innovative solutions that enhance agricultural practices. The GIA's objectives align with global priorities for sustainable agriculture and technological advancement, contributing to the broader goals of environmental resilience and food system sustainability.

ii) Global engagement – The GIA prioritizes engagement by bringing together diverse stakeholders on a global scale, including farmers, agribusinesses, policymakers, and researchers, in a collaborative environment. Climate change is a global challenge that poses a threat to agriculture on both a local and international scale. Collaboration with global partners is essential for developing agitech solutions that, while addressing local climate issues, benefit from a broader perspective. Emphasizing global collaboration holds the key to creating innovative strategies that enhance climate resilience. Through workshops, webinars, and joint research projects, the GIA will co-develop research initiatives that reflect and respond to the needs of agricultural communities, both locally and abroad.

iii) Equity and inclusivity – In addition to fostering research, it is vital to examine how agricultural advancements can provide safe and nutritious food to those facing food insecurity and transform food systems. Addressing how individuals in poverty can access food and how the GIA's innovations can improve their livelihoods is essential. The Institute will prioritize collaboration with the Food and Agriculture Organization (FAO) and Asia Pacific Rim Universities (APRU), ensuring that marginalized voices are included in agricultural innovation processes while integrating diverse perspectives into agritech solutions. Building on existing relations with the local Indigenous communities such as Tsawwassen Frist Nations, the GIA will involve partnerships to share knowledge, transfer traditional practices, and build capacity while acknowledging the historical impacts of modern agriculture.

iv) Academic excellence and practical application – Faculty and student researchers at the GIA will engage in projects that foster academic inquiry while delivering practical outcomes. Collaborations with industry partners will create pathways for students to gain hands-on experience and training in the latest agritech tools and methodologies. Global field school opportunities and local internship opportunities will be created through the GIA's work with partners.

v) Sustainability and resilience – Research initiatives spearheaded by the GIA will focus on developing sustainable agricultural practices that improve productivity while conserving natural resources. The overall goal is to enhance the resilience of food systems in the face of climate change, ensuring long-term agricultural viability for future generations.

Alignment with What's Next and Strategic Research Plan

The proposed institute fulfills the four core priorities of *What's Next: The SFU Strategy.* In working closely with Indigenous communities, the Institute **Upholds Truth and Reconciliation** through active engagement with and prioritization of Indigenous ways of knowing. The GIA addresses several of the UN's Sustainable Development Goals, including Zero Hunger (SDG 2), Industry, Innovation and Infrastructure (SDG 9), Sustainable Cities and Communities (SDG 11), and Life on Land (SDG 15). At its core, the GIA will seek solutions to the **Global Challenge** of climate change, specifically, sustainable agricultural practices and resilient food sovereignty. Work with international partners will facilitate the broad applications of the Institute's work to the unique challenges posed by different geographies and climates across the world. Locally, as the first agritech research institute of its kind in the province, the GIA will also **Make a Difference for B.C.** and provide an intellectual hub for advancements in agriculture technology within Western Canada. The increased training and mentorship opportunities that will support the development of more than 100 HQP in the first five years of the GIA will also **Transform the SFU Experience** and create new pathways from higher education to industry for our students.

SFU's Strategic Research Plan (SRP) supports the core values outlined in *What's Next*, and the GIA embodies these values. The Institute showcases SFU's research approach and encompasses in its design: a culture of inquiry; Indigenous approaches and knowledge(s); interdisciplinarity; linking research to teaching and learning; engagement with partners and communities; and investment in knowledge mobilization.

In addition, the proposed institute supports a number of the SRP's Priority Areas. The institute will **Advance Climate Innovation** through its development of agritech solutions to the challenges of climate change, and its direct engagement with communities in the co-design of these solutions. The results of this research will **Support Health and Wellness of Individuals, Populations, and Communities**, particularly through improved precision agriculture techniques and technologies that increase crop yield and reduce the use of harmful pesticides and herbicides. Finally, the technology developed through this institute can have wide-ranging impact beyond agriculture, and has the potential to **Transform Industry and Economies**.

The mutually reinforcing of priorities of the SRP and SFU's Academic Plan (in development) ensure that the research benefits of this institute will transition to teaching and learning opportunities at SFU, supported by the teaching and mentoring plan outlined below, to strengthen the HQP entering the work force, and fulfilling a significant gap that will meet the anticipated growth in this field.

RATIONALE FOR ESTABLISHING THE INSTITUTE:

Please include statements on the added value to the research collaborative and to the University in receiving this designation, as well as, any potential societal impact (beyond what would be accomplished by individual faculty members).

One of the primary motivations for establishing the GIA is to refine and elevate the university's existing collaborations among researchers in agricultural technology into a dedicated institute setting. The Institute will support formal co-operation among members from Engineering, Geography, Computer Science, Biology, and Economics, encouraging cross-faculty and pan-University initiatives. While several of the founding members have a long history of partnerships, the GIA will create a space for a holistic approach to argitech at SFU. By creating a formalized structure, the GIA will align with SFU's policies regarding naming conventions for research institutes, thereby enhancing clarity and focus in the university's efforts. There is a significant opportunity to reinvigorate these collaborations by integrating additional interdisciplinary faculty members. This expansion will create a critical mass of expertise and strengthen existing partnerships, thereby forming a more robust collaborative environment.

In particular, the GIA plays a pivotal role in fostering synergy and collaboration with the B.C. Centre for Agritech Innovation (BCCAI). As an organization focused on innovation, BCCAI requires a strong connection with faculty members and researchers at SFU to maximize its potential, but this capacity is not part of BCCAI's current mandate. The GIA will serve as a vital bridge to facilitate effective communication and collaboration between these two entities. By working together, the GIA and the BCCAI can enhance SFU's research capacity while simultaneously supporting local agitech innovators. This partnership will manifest through various initiatives, including the collaborative launch of events, training programs, and outreach activities, all aimed at creating a robust ecosystem that drives agricultural technology advancements and addresses pressing local climate challenges. Collaboration between SFU researchers and industry partners through the GIA will ensure that university research remains impactful and relevant to pressing societal challenges. By engaging in deep collaborative efforts and co-developing innovative agritech solutions, the GIA will directly contribute to addressing urgent agriculture-related issues and inform policies, ultimately delivering significant benefits to society at large.

The establishment of the GIA at SFU is vital to tackle pressing global challenges in agriculture, including climate change and food security*. Agricultural disease outbreaks, for example, pose significant risks to global food security and environmental sustainability worldwide, and result in the loss of primary productivity and biodiversity that negatively impact the environmental and socio-economic conditions of affected regions. By building on SFU's technological strengths in areas such as AI, robotics, and engineering, the GIA will foster collaboration between academia, industry, and government, promoting knowledge sharing while also attracting essential funding opportunities. The GIA will facilitate impactful partnerships on a global scale, positioning SFU as a leader in agritech research and innovation. This aligns with broader university goals by promoting sustainable advancements in agriculture and ensuring that research findings translate into practical applications.

The broadened membership and partnership of the GIA will increase the output of highly qualified personnel (HQP) in the agritech sector—addressing the growing industry demand for graduates who are well-trained in areas such as technology integration, sustainability practices, and data analytics. The report 'The Future of B.C.'s Food System' by the B.C. government's Food Security Task Force in 2020 emphasizes the need for collaboration among stakeholders and a long-term vision for future talent growth in B.C. Key recommendations include strengthening regional agricultural technology sector, food systems, enhancing food literacy and education. The targeted approach will address the increasing demands of the agritech sector, equip students and professionals with crucial skills, and significantly enhance educational programs tailored to this dynamic field.

* "Climate change impacts on plant pathogens, food security and paths forward", *Nature Reviews Microbiology*, Vol. 21, pp. 640 (2023).

PRIOR TO APPLYING FOR RESEARCH INSTITUTE STATUS, MEMBER OF RESEARCH INSTITUTES SHOULD NORMALLY HAVE A HISTORY OF COLLABORATIVE ACTIVITY AS A GROUP.

e.g. co-supervision of students, co-publications, or shared research data, funding, and/or projects.

Over 75% of SFU faculty members listed here have actively engaged in submitting significant research proposals, including the NSERC Sustainable Agriculture Call and the Canadian Foundation for Innovation (CFI) Innovation Fund 2025, specifically focused on sustainable agricultural practices. This collective effort not only highlights the alignment of research interests among the faculty members but also illustrates their commitment to addressing critical challenges in sustainable agriculture.

Several internal collaborations exemplify this trend. For instance, the research collaboration between Zamir Punja (BISC) and Ghassan Hamarneh (CS) stands out for the early detection of drop diseases using machine/deep learning methodologies. They have successfully collaborated on multiple projects, culminating in the publication of three journal papers over the past three years. One of their recent publications, "Characterization of trichome phenotypes to assess maturation and flower development in Cannabis sativa L. (cannabis) by automatic trichome gland analysis," appeared in Smart Agricultural Technology in 2023. Another productive collaboration can be seen in Woo Soo Kim (MSE) and Jim Mattson's (BISC) industrial project focusing on the indoor cultivation of blueberries, which was supported through the BCCAI during Woo Soo Kim's appointment as Scientific Director. This initiative, in partnership with the local company BeriTech, showcases the practical application of research in addressing industry needs and promoting sustainable agricultural practices.

Six faculty members (Drs. Kim, Lu, Schmidt, Hamarneh, Fisher, and Nazari) from the list of participating faculty members have applied for the NSERC Sustainable Agriculture Call for proposals focusing on novel carbon sequestration and carbon monitoring in the air and soil. This initiative will also be expanded to explore additional funding opportunities.

Seven faculty members (Drs. Kim, Lu, Schmidt, Hamarneh, Bahrami, Moallem, and Nazari) from the participating faculty have applied for the CFI Innovation Fund 2024 Call for proposals, which focuses on establishing novel agritech and phenotyping facilities at SFU, but it was not selected. The application will be resubmitted in the next round in 2026. Also, this initiative will be expanded to explore further funding opportunities.

Overall, these collaborative efforts illustrate the strength and potential of the research community in pursuing innovative solutions to agricultural challenges. The history of successful collaborations among faculty members enhances their credibility when applying for Research Institute status, and demonstrates a proven track record of teamwork and impactful research.

Current collaborations can continue and expand, and new collaborations can be facilitated through GIA.

Current collaborations include:

- Dr. Hamarneh and Dr. Punja have been collaborating on the cannabis disease detection by machine learning and jointly published three publications.
- Dr. Lu and Dr. Schmidt have jointly working together four journal publications.
- Dr. Kim has served on the thesis committee for seven graduate students in Dr. Bahrami's research lab.
- Dr. Lu serves on the thesis committee for one grad student in Dr. Kim's research lab.
- Dr. Lu (drone image analysis) and Dr. Kim (segmentation AI algorithm) collaborate drone-based crop disease detection.
- Dr. Schmidt and Dr. Lu serve on 2-3 grad student's thesis committee each other.
- Dr. Lu and Dr. Schmidt secured Mitacs funding for the satellite image analysis of soil health monitoring to support their graduate students' stipends. (2021-2024).

IF THE OBJECTIVES OF THE PROPOSED INSTITUTE OVERLAP WITH AN EXISTING RESEARCH CENTRE OR INSTITUTE, PLEASE PROVIDE EVIDENCE OF CONSULTATION WHERE A POTENTIAL CONFLICT HAS BEEN IDENTIFIED.

The objectives do not overlap with any other institute or centre. The B.C. Centre for Agritech Innovation focuses primarily on economic development in B.C. and is mandated to support the local innovation sector. As a result, it does not cater to agritech researchers within SFU and does not have the same potential for global outreach and partnerships. The GIA would fill these significant gaps by collaborating with researchers and faculty members on cutting-edge research and development, both within Canada and abroad.

PROPOSED DIRECTOR(S):

Please include a statement on the provision for the appointment of the Director.

The proposed director is Dr. Woo Soo Kim, who is in the Faculty of Applied Science. He was Scientific Director of B.C. Centre for Agritech Innovation and is currently Special Advisor to the Vice-president Research and Innovation for Agritech and Global Partnerships. He is an expert in the development of 3D sensors for monitoring plant physiology, drone technology, and AI-based strategies.

INTERNAL GOVERNING PROCESS:

The proposed institute will be led by the Director, who will hold this role for a five-year term. The Director will ensure that the GIA adheres to all policies and procedures for SFU Research Institutes (R40.01). In addition, the Director will attend all meetings, represent the Institute at external events, and perform duties and functions as authorized by the Associate Vice President of Research (AVPR). The Director will report directly to the AVPR (a non-voting ex-officio member of the Executive Committee), who will oversee the institute. In the absence of the Director, the members of the institute will use a process of voting to appoint a temporary Director until a continuing one can be found. Program Lead will be onboarded in the first year of the Institute to oversee the operation and ensure effective and comprehensive reporting.
An Executive Committee will be comprised of at least two Institute members, together with the AVPR (an ex-officio non-voting member) and Director. Members of this committee will occupy this role for three-year terms on a rotating basis. Decisions regarding budgets, finances, and grant applications will be made by the Director and the voting members of the Executive Committee on behalf of the institute, including the appointment and dissolution of special committees. Institute members will vote for representatives on the Executive Committee and participate in special committees. The Advisory Council (non-voting members) will provide guidance on funding opportunities and advise the institute's activities.

MEMBERSHIP:

Name	Position	Specialty	Department	Faculty	Institution
Dr. Woo Soo Kim	Professor	Precision Agriculture, Sensor, AI	Mechatronic Systems Engineering	FAS	Simon Fraser University
Dr. Bing Lu	Assistant Professor	Precision Agriculture, Drone	Geography	FENV	Simon Fraser University
Dr. Ghassan Hamarneh	Professor	Precision Agriculture, AI	Computer Science	FAS	Simon Fraser University
Dr. Zamir Punja	Professor	Plant biology	Biology	FS	Simon Fraser University

Dr. Jim Mattson	Professor	Genomics, Indoor Berry	Biology	FS	Simon Fraser University
Dr. Majid Bahrami	Professor and CRC I	Renewable Energy	Mechatronic Systems Engineering	FAS	Simon Fraser University
Dr. Margaret Schmidt	Associate Professor	Soil Science	Geography	FENV	Simon Fraser University
Dr. Mehrdad Moallem	Professor	Agri robot, Indoor Farm	Mechatronic Systems Engineering	FAS	Simon Fraser University
Dr. Zafar Adeel	Professor of Professional Practice	Water management	Sustainable Energy Engineering	FAS	Simon Fraser University
Dr. Jamal Nazari	Professor	Digital Analytics	Beedie School of Business	Beedie School of Business	Simon Fraser University
Dr. Fernando Aragon Sanchez	Professor	Environnemental Economics	Economics	FASS	Simon Fraser University
Dr. Brian Fisher	Professor	Design of Computational System	School of Interactive Arts & Technology	FCAT	Simon Fraser University
Dr. Paul Adams	Director & Professor	Affiliated Member	Applied Genomics Centre, Biology		Kwantlen Polytechnic University
Dr. Lauren Erland	Assistant Professor & CRC Tier2	Affiliated Member	Berry Horticulture		University of Fraser Valley
Dr. Ji Chul Bae	Research Scientist	Advisory Council	Science and Technology Branch (Agassiz)		AAFC (Agriculture and Agri-Food Canada)
Mr. Mat Patterson	Director	Advisory Council	Innovation and Competitiveness		BC Ministry of Agriculture
Dr. Annett Rozek	Chief Scientific Officer	Advisory Council	R&D		Terramera

Dr. Gert Kootstra	Associate Professor	Advisory Council	Agricultural Engineering		Wageningen University & Research
Dr. Kang Yu	Assistant Professor	Advisory Council	Agricultural Engineering		Technical University München
Dr. Sugiura Ryo	Director	Advisory Council	Research Center for Agricultural Information Technology		NARO (Japanese National Agriculture Research Organization)

ORGANIZATION STRUCTURE:

The GIA is led by the Director, in collaboration with the Program Lead and Executive Committee, and with the support of its institute faculty members and an external Advisory Council. GIA will also invite two associate directors from the faculty members, potentially early career researchers. This can provide the institute with more engagement from another faculty and an opportunity to do mentorship for the succession planning for the next director. The Institute's membership will be made up of voting members, typically principal investigators from both SFU and partner agencies. There will be an Advisory Council of non-voting members that will provide advice to the Executive Committee. See Fig 1.

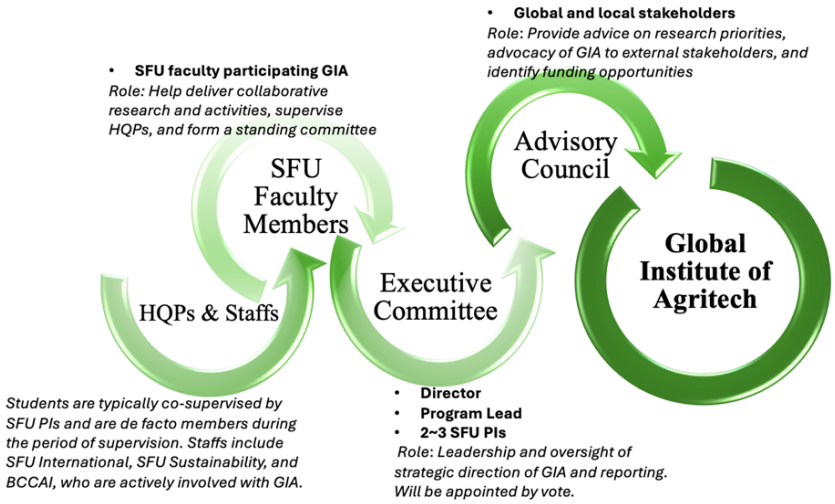

Figure 1: Organizational structure of proposed GIA

PROCEDURES FOR RATIFYING NEW MEMBERS:

A majority vote of Institute members will ratify new members.

AFFILIATES:

GIA will invite affiliated members from the University of Fraser Valley and Kwantlen Polytechnic University to enhance the traditional agricultural strengths. Also, the Advisory Council members are often current employees of Agriculture and Agri-Food Canada (AAFC), or the BC Ministry of Agriculture Advisory Council. It is anticipated that the GIA's institute members will frequently hold affiliation with these organizations.

BCCAI recently launched the BCCAI Ambassador Program, featuring representative academic champions from five BC institutions. GIA will actively invite these ambassadors to participate in our activities and collaborate on initiatives, such as jointly developing NSERC CREATE proposals.

TRAINING AND MENTORSHIP OPPORTUNITIES FOR STUDENTS:

The GIA aims to enhance training and mentorship opportunities for students by forging partnerships with both Canadian and international organizations. Planned training and mentorship pathways within the first five years include:

Local Training Opportunities for Grad Students and Post-Doctoral Fellows:
In Canada, the GIA plans to leverage Mitacs funding to amplify training programs in collaboration with local agritech companies. This initiative will facilitate both graduate and undergraduate student internships, providing hands-on experience in the field. The GIA's faculty members will also work on applying for Mitacs Umbrella projects, which will create multiple internship opportunities over an extended period with multiple companies, enriching the training experience for participants.
NSERC's CREATE program also presents an opportunity to develop tailored, experience-based training for HQP in collaboration with industry and academic partners. Dr. Kim is now in the process of designing this program for the 2025 application cycle.

Global Field Schools for Undergrad and Grad Students:
On an international scale, the GIA will strategically connect with key stakeholders in countries such as Tanzania (Aga Khan University and Nelson Mandela African Institute of Science and Technology), the Netherlands (Wageningen University and Research), the USA (University of California, Davis), and Japan (National Agriculture and Food Research Organization). These partnerships will enable the establishment of field schools specifically designed for undergraduate and graduate students. Such field schools will offer unique learning experiences abroad, and allow students to engage with global practices and innovations in agriculture. Additionally, we anticipate reciprocal visits from these institutions to SFU, fostering collaboration and knowledge exchange that will enrich our academic environment and strengthen our partnerships.

Through these comprehensive training and mentorship opportunities, the GIA is committed to fostering the next generation of leaders in agritech, equipping them with the skills and experiences necessary to thrive in a global context.

RESEARCH INSTITUTE 5-YEAR GOALS AND KEY PERFORMANCE INDICATORS:

The GIA will establish a Global Food Security & Agritech Hub at SFU, sponsored by APRU (Asia-Pacific Rim Universities), to serve as a catalyst for innovation and collaboration in agricultural technology with prominent global stakeholders. This will be evidenced by:

1. Training of HQPs—over 100 individuals in collaboration with stakeholders such as BCCAI—as demonstrated by various training programs, field schools, and workshops designed to equip participants with advanced skills in agritech applications.
2. Promotion of next-generation researchers in agritech topics, as evidenced by the successful development and submission of at least 10 research proposals to granting agencies from emerging scientists.
3. Engagement with local Indigenous communities to enhance food security and climate resilience, demonstrated by the establishment of at least three partnerships that focus on community-led sustainable agricultural initiatives and knowledge exchange.
4. Organization of collaborative events that bring together researchers, practitioners, and Indigenous

community members, evidenced by at least one event per year aimed at fostering dialogue and partnerships to address local food system challenges.

Through these initiatives, the GIA aims to contribute significantly to sustainable agricultural practices and transformative research in Canada.

CURRENT RESOURCES AND FUTURE SUSTAINABILITY:

Collaborations:
More than 75% of faculty members listed here have collaborated on the NSERC Sustainable Agriculture pre-proposal project ($35,000 for one year in 2023). They plan to submit another application for the NSERC NFRF-E 2024, NSERC CREATE 2025, and CFI Innovation Fund 2026, specifically aimed at sustainable agricultural practices. This collective effort not only underscores the shared research interests among the faculty members but also demonstrates their commitment to tackling significant challenges in sustainable agriculture.

By establishing an Institute, current collaborations can continue and expand, and new collaborations can be facilitated. Current collaborations include:
- Dr. Hamarneh and Dr. Punja have jointly published three publications.
- Dr. Lu and Dr. Schmidt have jointly working together four journal publications.
- Dr. Kim has served on the thesis committee for seven graduate students in Dr. Bahrami's research lab.
- Dr. Lu serves on the thesis committee for one grad student in Dr. Kim's research lab.
- Dr. Schmidt and Dr. Lu serve on 2-3 grad student's thesis committee each other.
- Dr. Lu and Dr. Schmidt secured Mitacs funding for their grad students' stipend together (2021-2024).

Staff Resources Committed:
- SFU International: 10 hours/month of staff time contribution from *Carol Zachs* and *Yukino Mori* for establishing global partnerships and exploring new opportunities for GIA. The annual total for this commitment is 120 hours, amounting to 600 hours and almost in-kind $40,000 over five years.
- SFU Sustainability and Climate: *Kilim Park*, Manager of Research, will contribute 2 hours/month. Her strategic support will help align the GIA with institutional priorities and foster connections with complementary projects. *Erin Travers*, Grant & Development Facilitator, will dedicate 8 hours/month. She will assist GIA in identifying strategic funding opportunities and support proposal development through resource preparation and editorial reviews. *Lindsay Bunce*, Director, will provide 2 hours/month. She will offer strategic support to align GIA with institutional priorities and facilitate connections within the sustainability community. The annual total for this commitment is 144 hours, amounting to 720 hours and almost in-kind $50,000 over five years.
- SFU Advancement & Alumni Engagement (AAE): SFU AAE will assist the GIA in its fundraising efforts to cover initial core costs of operation cost annually, with a long-term goal of securing a $4M endowment for ongoing needs. AAE will allocate staff resources for prospect research, donor cultivation, and creating communication assets like a case for support and proposal template. AAE's Senior Director will provide 5 hours/month of advice and fundraising assistance, focusing on developing relationships with prospective donors to meet the GIA's initial operating requirements and establish long-term funding. The annual total for this commitment is 60 hours, amounting to 300 hours and almost in-kind $20,000 over five years.
- B.C. Centre for Agritech Innovation (BCCAI): 10 hours/month of staff time contributed by *Ankit Popli* for the program assistant role with GIA. The annual total for this commitment is 120 hours, amounting to 600 hours and almost in-kind $30,000 over five years.

- SFU Partnership Hub: 5 hours/month of staff time contributed by *Partnership Managers* for the partnership building for GIA. The annual total for this commitment is 60 hours, amounting to 300 hours and almost in-kind $20,000 over five years.

Funding:

The GIA has received interest from external donors to provide long-term funding for student exchange, student Research Assistantships (RAs), an annual external collaborator meeting, and salary for a research scientist/Program Lead through upcoming SFU Advancement campaigns.
We will be submitting a Mitacs Accelerate Umbrella grant proposal dedicated to consortium projects that offer numerous internship opportunities with local industry partners. This funding will specifically support the collaborative aspect of the institute in conjunction with local agritech companies. We expect that the institute will continue to attract funding opportunities as it becomes more established. Additionally, members of the proposed institute have begun the process to submit NSERC NFRF-E 2024 and NSERC CREATE in 2025, which will help fund institute initiatives (student training, collaborative projects, and research scientist). Given the international scope of this work, the team could plan to develop a collaborative, interdisciplinary project in anticipation of the 2026 New Frontier Research Fund Transformations call and the annual New Frontier Research Fund International calls.

Sustainability Plan:

A crucial element of establishing the GIA is the recruitment of a dedicated Program Lead who will oversee the GIA's operations and sustainability. By establishing this position, the GIA will be better positioned to formalize and attract funding to ensure long-term viability. This role will focus on critical aspects of sustainability, including grant writing, developing new initiatives, fostering collaborations, providing targeted training opportunities for students, and conducting impactful research. The ideal candidate for this position will have extensive experience in agritech research and community engagement, with a proven track record of securing funding, nurturing partnerships, and mentoring students. This expertise will be invaluable for the GIA's mission. The proposed Director previously served as the scientific director of BCCAI, where they significantly contributed to developing and implementing sustainable revenue generation models, including training programs and cost-sharing funding opportunities. At GIA, the director intends to apply this experience in collaboration with the Program Lead to establish effective revenue generation strategies that ensure the sustainability of GIA.

The GIA is expected to attract interest from scientists and researchers across various fields, as well as organizations eager to collaborate on innovative solutions for sustainable agriculture. The existing network of contacts and collaborators assures that there will not be difficulties in identifying new partners to further enrich initiatives and strengthen the hub's sustainability.

By focusing on strategic recruitment, collaboration, and training, the GIA aims to foster a self-sustaining ecosystem that not only advances agritech research but also actively engages with local communities to address pressing food security and climate resilience challenges.

WOULD THE ESTABLISHMENT OF THIS INSTITUTE ENABLE THE MEMBER RESEARCHERS TO ATTRACT FUNDING BEYOND WHAT THEY WOULD BE ABLE TO DO ON THEIR OWN? PLEASE EXPLAIN.

Establishing the GIA is a strategic initiative aimed at securing increased funding in the agritech sector. The proposed institute has already garnered interest from external funders who are prepared to support student stipends, facilitate an annual meeting for external collaborators, and fund the salary of a research scientist. This research scientist, serving as the Program Lead, will play a crucial role in writing additional grants, thereby leveraging existing funding opportunities for future projects and ensuring the long-term sustainability of the institute. Furthermore, members of the proposed institute have initiated the application process for an NSERC CREATE grant, specifically designed to fund large collaborative inter-agency projects focused on training and global collaboration. By formalizing the institute and creating a collaborative structure, the GIA will enhance relationships and open new avenues for attracting funding for joint research projects, ultimately strengthening the impact and reach of agritech innovations.

COMMUNICATION PLAN:

Provide a description of a communication plan that is aligned with University Communication policies, including plans for maintaining an up-to-date web/social media presence.

Research opportunities and research findings will be communicated through a website, which has been planned together with website specialist in SFU Communications & Marketing and potentially established soon after the Senate's approval. This website brings together research from across all the research groups (both SFU and agencies), highlights collaborative projects, achievements, news stories, publications, and theses.
The GIA will also produce an annual report both to the VPRI office and shared publicly which highlights achievements, current projects, and students trained.

EVIDENCE OF SUPPORT:

Please include evidence of support from the Dean or Associate Dean, Research of the home Faculty of the proposed Institute Director (mandatory).

Date: 8/23/2024

Dr. Woo Soo Kim

Applicant Signature: 

By signing this form, the applicant confirms they have reviewed SFU Policy R40.01 and related Procedures and agrees to conduct its activities in accordance with University policies.

Constitution for the Global Institute for Agritech (GIA)

Article I: Name of Institute
The name of this research institute shall be the Global Institute for Agritech (GIA).

Article II: Purpose
The GIA is established to be a leading institute for research and innovation in agricultural technology at Simon Fraser University (SFU), aimed at addressing global agricultural challenges related to climate change and food security. The Institute will foster interdisciplinary collaboration among researchers, industry professionals, and external partners to develop scalable and transferable agritech solutions through innovative research and strategic partnerships.

Article III: Objectives
1. **Research and Development**: Conduct cutting-edge agritech research focusing on artificial intelligence, date-driven precision farming, sustainable crop protection and management, and crop diversification for food security.
2. **Global Engagement**: Facilitate international collaboration with farmers, agribusinesses, policymakers, and researchers to address local and global agricultural challenges.
3. **Equity and Inclusivity**: Ensure that agricultural advancements support marginalized communities, emphasizing food security and equity in agricultural innovation.
4. **Academic Excellence**: Promote collaboration between faculty and students, providing hands-on training and internship opportunities aligned with the latest agritech methodologies.
5. **Sustainability**: Develop sustainable agricultural practices that enhance resilience against climate change while conserving natural resources.

Article IV: Alignment with University Priorities
The GIA aligns with SFU's strategic research plan and the university's core priorities. It addresses crucial issues such as sustainability, Indigenous engagement, and interdisciplinary collaboration, fulfilling multiple UN Sustainable Development Goals, including Zero Hunger and Climate Action.

Article V: Membership
1. Membership shall consist of researchers, faculty members, and external partners involved in agritech initiatives.
2. New institute members including the affiliated members will be ratified through a majority vote among existing members seeking a more diverse membership.
3. An Advisory Council composed of external experts will provide guidance and support the institute's objectives.
4. Students are typically co-supervised by GIA’s faculty members and are de facto members during the period of supervision.

Article VI: Governance
1. The Institute shall be led by a Director, appointed for a five-year term with the possibility of renewal.
2. The Executive Committee shall consist of the Director, at least two members of the Institute (potentially serving as Associate Directors), and the Associate Vice President of Research (an ex-officio non-voting member), who will oversee the institute. The Committee shall be responsible for overseeing budgets, grant applications, and strategic decision-making.
3. In the absence of the Director, a temporary Director will be elected by voting members.

Article VII: Sustainability
The GIA will secure funding through various initiatives, including grants, partnerships, and collaborations, ensuring long-term sustainability and effectiveness in promoting agritech research.

Article VIII: Amendments
This constitution may be amended with a two-thirds majority vote from the Institute members, provided that a notice of the proposed amendment is shared at least one week prior to the vote.

Article IX: Effective Date
This constitution will become effective upon its approval by the SFU Senate and will guide all activities and governance of the Global Institute for Agritech.

SFU SIMON FRASER UNIVERSITY

FACULTY OF APPLIED SCIENCES
www.sfu.ca/fas

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Re: Global Institute for Agritech (GIA)

Dear SFU Senate,

On behalf of the Faculty of Applied Sciences at SFU, I am pleased to provide my enthusiastic support for Dr. Woo Soo Kim to apply for the establishment of the Global Institute for Agritech (GIA).

The proposed institute is fully aligned with the University's Strategic Research Plan, supporting its defined values and priority research areas. As outlined in the proposal, the institute aims to facilitate close collaboration with Indigenous Communities, address global climate challenges, and advance research in applied science and agricultural technology. These goals are crucial to feasibly enhancing climate resilience and ensuring food security, not only in British Columbia, which is home to over 1,500 agricultural businesses, but indeed on a far-reaching global scale. SFU's commitment to sustainability and climate change has been driving initiatives to support research, and the proposal for the GIA clearly defines how it would further the approach to meet national climate goals as well as contribute globally to a cleaner and more sustainable environment.

While the GIA may benefit the Faculty of Applied Sciences, I am more enthusiastic about the potentially larger benefits to SFU as a whole through fostering interdisciplinary collaboration, advancing R&D, and establishing valuable industry partnerships. It has considerable promise to attracting funding for sustainable agriculture initiatives, providing students with global perspectives on agricultural challenges, and serving as an incubator for innovation. The institute will also enhance learning through workshops and community engagement, while building capacity to address food security and climate resilience. This alignment with sustainability goals will enable faculty and students to contribute meaningfully to the agritech sector.

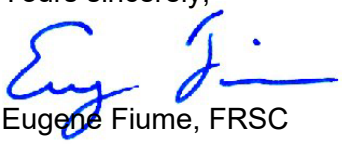
The focused agenda provided by the GIA may attract global academic and industrial partners by promoting its commitment to cutting-edge research, innovation, and sustainability in agritech. By showcasing its interdisciplinary approach and capacity for collaborative projects, the GIA will be attractive to institutions and companies seeking to address pressing global challenges such as climate change and food security. Local partners, including agricultural businesses and Indigenous communities, can be engaged through initiatives that focus on practical solutions tailored to regional needs and through opportunities for

knowledge exchange and workforce development. The GIA's emphasis on real-world impact and shared goals will create a compelling case for collaboration across diverse sectors.

Dr. Woo Soo Kim is well-suited to lead the GIA due to his extensive experience and commitment to advancing the Agricultural Technologies (agritech) concentration in our School of Mechatronic Systems Engineering, particularly as an expert in 3D device development for remote sensing, drone technology, and AI-based strategies. His collaboration with the Asia-Pacific Rim Universities (APRU) has provided him with valuable insights and connections, enabling him to successfully launch APRU's agritech and food security research hub at SFU, which will serve as a strong collaborator for the GIA. Additionally, Dr. Kim's vision for the GIA includes fostering global partnerships with the Netherlands and the USA, as well as developing countries such as Tanzania. APRU serves as an example of how collaborative initiatives can leverage international expertise and resources to create impactful solutions. By integrating these diverse perspectives, Dr. Kim aims to create a more inclusive and sustainable agricultural future. As the former scientific director of the B.C. Centre for Agritech Innovation, Dr. Kim has cultivated a robust network of partnerships with prominent international and Canadian stakeholders. His commitment to enhancing SFU's agritech capacity and strengthening interdisciplinary research initiatives harmonises with this global partnership vision. Under his leadership, the institute can effectively address critical challenges in agriculture while fostering collaboration and innovation within the academic and agricultural communities.

I look forward to seeing further growth and groundbreaking research in agritech from SFU to sustain its leadership in sustainability and innovation, and to put us on the map internationally through making substantive contributions to global environmental challenges.

Yours sincerely,



Eugene Fiume, FRSC
Dean, Faculty of Applied Sciences