Curriculum Vitae – Shane Sookhan, Ph.D.

1 Basic Information

Email: ssookhan15@gmail.com or shane.sookhan@altitudeintellect.com
Phone: (437) 775-0928
Nationality: Canadian Citizen
Address: 110 Root Crescent, Ajax, Ontario, Canada
Website: shanesookhan.com

2 Education

2015-2022 **Doctor of Philosophy in Environmental Science**
University of Toronto, Canada

- Thesis title: "Exploring the glaciodynamic significance and origin of drumlins and mega-scale glacial lineations from high-resolution topographic imagery"
- Supervisor: Dr. Nick Eyles
- Selected courses:
  - Quantitative Applications for Data Analysis
  - Quantitative Environmental Analysis
  - Introduction to Neural Networks
  - Neural Network Programming
  - Advanced Neural Networks

2014-2015 **Master of Environmental Science**, Research Stream
University of Toronto Scarborough, Canada

- Thesis title: “LiDAR-based volume assessment of the origin of the Wadena drumlin field”
- Major projects:
  - Presentation on chemistry-based technologies used to treat contaminated lakes
  - Review of remediation technologies used in the Love Canal in New York State, USA
  - Research on the use of Nearest Neighbour Analysis in studying landform distributions
  - Review of absolute dating techniques, comparing their use in glaciology and biology

2009-2014 **Honours Bachelor of Science**, Environmental Geoscience Specialist
University of Toronto Scarborough, Canada

- Thesis title: “An erosional model for drumlins, megaflutes and Rogen moraines”

3 Research Experience

2024-Present **Research Scientist,**
GeologicAI, Toronto, Canada

- Develop AI-based algorithms and software for processing and analyzing LiDAR, SWIR, VNIR, and XRF data from geological core samples, enabling high-resolution mineralogical and geotechnical insights that reduce the need for excessive drilling and minimize environmental disturbance
- Conduct research into texture-based fracture and rubble classification in cylindrical core samples to support more accurate geological modeling, improving mine planning efficiency and promoting more sustainable resource extraction strategies
- Contribute to innovations that enhance selective mining, optimize core utilization, and support data-driven approaches to lower the ecological footprint of exploration and extraction

2023-2024 **Postdoctoral Researcher,**

Department of Physical and Environmental Science, University of Toronto Scarborough

- Supervisor: Dr. Jim MacLellan and Dr. Laura Tozer
- Conceptualized and co-developed INTERSECT, an innovative research initiative to analyze and visualize the spatial relationships between climate variables and socio-economic data.
- Designed custom geospatial tools and workflows to support data integration, analysis, and visualization, enhancing accessibility for interdisciplinary research.

2022-2024 **Geospatial Data Analyst Consultant,**

Altitude Intellect, Toronto, Canada

Sole proprietor of geospatial data analysis consulting company

- Responsible for responding to request for proposals and generating funding for project development
- Projects include research into glaciological significance and development of geospatial analysis tools for mineral exploration in Canada's North (Natural Resources Canada contract) and development of geospatial data hub for interactive teaching web app (University of Toronto contract)

2021-2022 **Quaternary Geologist and Data Modeller,**

Geological Survey of Canada, Natural Resources Canada

- Developed geospatial analysis methods for mapping and differentiating glacial activity regimes from remote sensed data
- Acquired and assembled LiDAR-based Digital Elevation Model data for study area in south Baffin Island
- Geospatial analysis completed using Python scripts with mapping done in ArcMap and ArcGIS Pro
- Work being developed into publication on the effectiveness of using image analysis for obtaining crucial information for mineral exploration planning

2020-2022 **Unmanned Aerial Vehicle Operator and Researcher,**

Department of Biology, University of Toronto Scarborough

- Planned, programmed, and executed automated Unmanned Aerial Vehicle (UAV) remote sensing data collection programme in the Rouge National Urban Park to map the abundance and growth of specific plant species
- Developing and adapting a variety of machine learning methodologies to analyse the collected data
- Work will be developed into a publication in conjunction with the Biodiversity of Urban Green Spaces (BUGS) Lab at UTSC led by Dr. Scott MacIvor

2019-2021 **Machine Learning Data Analyst,**

University of Toronto Scarborough

- Used Python machine learning libraries to develop behavioral and predictive models using autoencoders to provide solutions to various stakeholders at the university and various partners (Metrolinx, International Centre for Integrated Mountain Development; ICIMOD, Eastern Charlotte Waterways)
- Work will be developed into a Decision Analysis publication in partnership with Dr. Jim MacLellan and early results published online for ICIMOD workshop on intersectionality (planetearth.utsc.utoronto.ca/people/)

2015-2022 **PhD Candidate in Environmental Science**,

Department of Physical and Environmental Science, University of Toronto Scarborough

Supervisor: Dr. Nick Eyles

- Developed GIS-based image analysis and machine learning techniques to improve the mapping of formerly glaciated landscapes from remote sensing data to model the future of current ice sheets and predict effects of global climate change
- Pre-existing remote sensing datasets supplemented using UAV remote sensing (LiDAR and photogrammetry)
- Data analysis skills and software used include Python (Scikit-learn, TensorFlow, arcpy), R (ggplot, caret package), machine learning (neural network analysis, unsupervised image segmentation), classification (fuzzy logic, decision tree), ArcGIS (spatial statistics)
- Work resulted in 15 peer-reviewed publications and 19 conference presentations

2018 **Remote Sensing Data Analyst**
Centre for Planetary Sciences, University of Toronto Scarborough

- Aided in the processing of Digital Elevation Model (DEM) data of Pluto to develop geomorphological maps to be used by Dr. Noah Hammond.

2013 **Field Researcher**- Dendrochronology of Aeolian Dunes at Long Point Provincial Park, Ontario, *University of Toronto Scarborough*
Supervisor: Dr. Nick Eyles

- Collected and logged tree core samples of identified tree species
- Took detailed notes and technical photographs of observations
- Used mapping and database software to present findings of research

4 TEACHING EXPERIENCE

2024 **Sessional Instructor**, EESC31 Glacial Geology
Department of Physical and Environmental Science, University of Toronto Scarborough

2023 **Sessional Instructor**, GGRB30 Fundamentals of GIS I
Department of Human Geography, University of Toronto Scarborough

2022 **Earth & Environmental Data Science Workshop Lead**
Aggerate Intellect and Natural Resources Canada

- Designed and presented workshops on key python packages used to read, analyze and visualize Earth and environmental data (community.ai.science/earth-environmental-data-science-workshop)
- Covered acquiring, manipulating, analyzing, and styling common geospatial data types in Python
- Libraries covered include Xarray, Geopandas, Rasterio, rioxarray, Dask, Cartopy

2020-2021 **Online Learning Coordinator**
Department of Physical and Environmental Sciences, University of Toronto Scarborough

- Assisted in transitioning traditional course material into an online delivery format for multiple disciplines (Environmental Science and Studies, Biology, Chemistry, and Physics)
- Provided advice on the best delivery formats based on desired teaching outcomes through one-on-one consultations and workshops (+200 hours of consultations)
- Provided technical support with online teaching tools
- Created promotional material for department (planetearth.utsc.utoronto.ca/vfs/cascade/Scarborough2.html)

2015-2021 **Teaching Assistant**, Undergraduate and Graduate-level Environmental Science courses

University of Toronto Scarborough

- Created, organised, and conducted laboratory exercises
- Aided in course management and grading
- Demonstrated the use of geophysical equipment (GPR, Lake Sub Bottom Profiler) and the analysis of geospatial datasets (LiDAR and Orthophotogrammetric derived DEMs)
- Courses taught:
    - Introduction to Planet Earth (2015-2021)
    - Earth History (2015-2017)
    - Petrology (2015-2017)
    - Glacial Geology and Sedimentology (2016-2020)
    - Geological Evolution and Environmental History of North America (2019-2021)
    - Environmental challenges in urban environments (2017-2019)

2014-2022 **Student Mentor**

University of Toronto Scarborough

- Planned and assisted with undergraduate research projects and graduate thesis projects on topics related to geospatial data analysis and remote sensing
- Students mentored:

Alan Yu, "*Neural Network Mapping of the Wadena Drumlin Field from LiDAR DEM Data*", Undergraduate Research Project, Centre for Research in Earth System Science (CRESS) Award ($6000 CAD), UTSC-DPES

Cheng Peng, "*Geostatistical Analysis of Ice Flow Dynamics in the Puget Lobe Ice Stream*", Undergraduate Research Project, CRESS Award ($6000 CAD), UTSC-DPES

Sajid Bukhari, "*Regional subglacial quarrying and abrasion below a paleo ice stream crossing the Shield-Paleozoic boundary of central Canada*", Undergraduate Research Project, UTSC-DPES

Phillip Ruscica, "*Lidar Mapping of a Soft-bed Ice Stream Landsystem: Green Bay Lobe, Wisconsin USA*", Undergraduate Research Project and Master of Environmental Science Thesis Project, UTSC-DPES

Edina Illyes, "*Investigation the Geomorphology of the Puget Lobe Drumlin Field in Washington State using LiDAR elevation data*", Undergraduate Research Project, UTSC-DPES

Weiwei Zhou, "*Glaciotribology of drumlins and megascale glacial lineations*", Post-Doctoral Research, UTSC-DPES

Ian Zhang, "*Modelling subglacial bedrock deformation using a cross-disciplinary approach*", Undergraduate Research Project, NSERC Student Research Award ($4500 CAD), UTSC-DPES

Lina Arbelaez-Moreno, "*Ice streams of the Late Wisconsin Cordilleran Ice Sheet in western North America*", Undergraduate Research Project, UTSC-DPES

Peter Yu, "*Investigation the Geomorphology of the Wadena Drumlin Field, Minnesota using LiDAR elevation data*", Master of Environmental Science Thesis Project, UTSC-DPES

2014-2022 **Guest Lecturer**, Undergraduate and Graduate-level courses

University of Toronto Scarborough

- Created and presented lectures on research practices and the use of geospatial data such as LiDAR and UAV derived elevation datasets and orthophotography
- Courses taught:
    - Introduction to Planet Earth
    - Earth History
    - Glacial Geology and Sedimentology
    - Geological Evolution and Environmental History of North America
    - Environmental challenges in urban environments
    - Advanced Seminar in Environmental Science

5 ACADEMIC AND ADMINISTRATIVE EXPERIENCE

2022 **ECO-Canada Accreditation Review Program Representative**
University of Toronto and Canadian Environmental Accreditation Commission

- Served on panel to help make case for accreditation of BSc in Environmental Sciences and BA in Environmental Studies programs
- Covered mission and objectives, program development and maintenance, curriculum and student services

2020-2021 **Learning and Education Advancement Fund Focus Group Member**
Office of the Vice-Provost, Innovations in Undergraduate Education, University of Toronto

- Participated in tri-campus meeting redesigning and discussing the future of the University of Toronto's LEAF funding stream
- My previously prepared proposal document now used as 'boiler-plate' document for future grant applicants

2015, 2017/18 **Conference Field Trip Co-Leader**
2018 CANQUA/AMQUA conference in Ottawa, ON, 2017 GAC-MAC annual meeting in Kingston, ON and 2015 AGU-GAC-MAC-CGU Joint Assembly in Montreal, QC

- Organised and led fieldtrip starting in Toronto and ending in Kingston highlighting areas of glaciological significance to internationally renowned researchers
- Published field guide summarising trip in peer-reviewed conference proceeding

6 RELEVANT SOFTWARE DEVELOPMENT EXPERIENCE

2024 **Senior Geospatial Developer,**
Confluvio Consulting Inc.

- Contribution to design and creation of interactive web maps developed using VueJS, JavaScript, MapBox GL JS, and other libraries
- ArcGIS PRO tool development and documentation writing, including processing global datasets using the developed tool
- Prepare GIS training materials and deliver GIS training sessions to customers as needed
- Sample of work: https://freshwaterprioritization.tnc.org/

2021-2022 **Web Developer,**
Public Risk Management (PRISM) Institute
Lead developer on ComeAI, a web app which allows user manipulation of Bayesian model parameters to provide information on socio-economic risk factors influenced by environmental data to stakeholders

- Responsible for HTML, CSS and JavaScript development
- Includes the geocoding of web-scraped open-source socio-economic data (World Bank, etc.) for use in Leaflet map-UI element for selection of model parameters

2017-2022 **E-learning Developer,** Instructional Design lead for Planet Earth Online, an undergraduate geology online module-based course funded by the Ontario government as part of two eCampus Ontario eLearning projects and by the University of Toronto Learning and Education Advancement Fund Impact

Grant (planetearth.utsc.utoronto.ca) and Virtual Petrography, an online tool for teaching microscopy that is now used at the University of Toronto, the University of Waterloo and McMaster University
University of Toronto Scarborough

- Course Development software used includes Articulate Storyline 2, Adobe Captivate, Photoshop, Illustrator, PowerPoint, Camtasia and BlackBoard LMS
- Geospatial web development packages used include Leaflet, TileMill, Cesium StoryMapJS, PanolensJS, and ArcGIS StoryMaps
- Learning objects coded using Javascript, Python, CSS, JQuery and HTML. All learning objects developed to meet Web Content Accessibility Guidelines (WCAG)

2012-2020 **Web Developer**, Development of Educational Software for Geology and Environmental Science, *University of Toronto Scarborough*
Project: Let's Rock Ontario Android App and planetrocks.utsc.utoronto.ca

- Co-planned and developed educational software, including programming, design, and content
- Conducted field research around Ontario for identification of geologic and culturally significant locations. Including the taking of detailed field notes and technical photography
- Aided in the organization of partnerships with the Ontario Highlands Tourism Organization (OHTO) and the Royal Ontario Museum for collaboration and funding

7 Academic Awards and Research Funding

2021-2024 **Automated Mapping for a New Glacial Map of Northern Canada - $120,000 CAD**
GEM-GeoNorth, Geological Survey of Canada, Government of Canada
Part of collaborative team with GSC (PI: Dr. Roger Paulen) and UofT (PI: Dr. Nick Eyles)
Funds directly awarded: $43,500 CAD

2021 **University of Toronto Scarborough Graduate Student Research Award - $3,000 CAD**
University of Toronto Scarborough, Canada

2021 **University of Toronto Scarborough Graduate Teaching Assistant Award - $500 CAD**
University of Toronto Scarborough, Canada

2021 **Department of Physical and Environmental Sciences Teaching Assistant Award - $300 CAD**
University of Toronto Scarborough, Canada

2015-2020 **University of Toronto Doctoral Fellowship - $45,201 CAD**
University of Toronto Scarborough, Canada

2015 and 2019 **School of Graduate Studies Conference Grant - $1,380 CAD**
University of Toronto, Canada

2016-2018 **Ontario Graduate Scholarship - $30,000 CAD**
Government of Ontario, Canada

2015 **Master of Environmental Science Fellowship - $5,000 CAD**
University of Toronto Scarborough, Canada

8 Teaching Grants

2021- 2022 **eCampus Ontario Open Content Initiative - $89,912 CAD**

Project Name: A country on the move: Canada's changing landscapes
Lead PI: Dr. Nick Eyles
Government of Ontario, Canada

2020 **Learning and Education Advancement Fund Seed Grant - $15,000 CAD**
Project Name: Development of a Virtual Petrographic Laboratory Environment for Use in Environmental Science - Geoscience Specialist Program (planetearth.utsc.utoronto.ca/VirtualMic/)
Lead PI**:** Dr. Heidi Daxberger
University of Toronto, Canada

2018-2020 **Learning and Education Advancement Fund Impact Grant - $93,000 CAD**
Project Name: Using virtual reality in large enrollment Environmental Science courses
Lead PI**:** Dr. Nick Eyles
University of Toronto, Canada

2018-2019 **Teaching Enhancement Grant - $3,660 CAD**
Project Name: The Gamification of Risk: A Simple Program for Introducing the Concept, and Quantification of Environmental Risk
Lead PI: Dr. Jim MacLellan
University of Toronto Scarborough, Canada

2017-2018 **eCampus Ontario Open Content Initiative - $92,000 CAD**
Project Name: Planet Earth Online (planetearth.utsc.utoronto.ca)
Lead PI: Dr. Nick Eyles
Government of Ontario, Canada

2013 **Teaching Enhancement Grant - $8,800 CAD**
Project Name: Outside-Inside: Bringing the environment into the classroom by creating virtual field trips experiences for urban students (planetrocks.utsc.utoronto.ca)
Lead PI: Dr. Nick Eyles
University of Toronto Scarborough, Canada

9 LICENSES AND CERTIFICATIONS

2021 **Certificate in Data Science**
SciNet High Performance Computing Consortium

2020 **Small Remotely Piloted Aircraft System Basic Operations**
Transport Canada - Transports Canada

10 PUBLICATIONS

Peer-reviewed journal articles: 16 published (8 first author), 4 in prep.
Peer-reviewed conference proceedings: 1

ResearchGate Metrics (05/27/2025)
Total citations: 307
h-index: 9

Refereed publications (Mentored co-authors are underlined with Undergrad[U], Graduate[G])

Sookhan, S., Paulen, R., Zajch, A., Tremblay, T., and Eyles, N. Reconstructing glaciodynamic behaviour using surface-based roughness analysis of high-resolution digital elevation model data in Southern Baffin Island, Nunavut, Canada and the Peterborough, Ontario, Canada. Earth Surfaces Processes and Landforms, In Prep.

Sookhan, S., and Eyles, N. Glaciological structure of a surge-induced Late Wisconsin paleo-ice stream: Two Medicine Glacier, eastern Rocky Mountains, Montana, USA. Geological Society of America Bulletin, In Prep.

Paulen, R., **Sookhan, S**., Tremblay, T., and Eyles, N. Median flow-directional roughness of study area in Southern Baffin Island, Nunavut, Canada. Journal of Maps, In Prep.

Grill, G., Tickner, D., **Sookhan, S.**, Lehner, B., Thieme, M., Opperman, J. A standardized index to monitor trends in global and regional river connectivity. Ecological Indicators, In Prep.

Sookhan, N., **Sookhan, S**., Grewal, D., & MacIvor, J. S. (2024). Automating field-based floral surveys with machine learning. Ecological Solutions and Evidence, *5*(4), e12393.

Sookhan, S., Eyles, N., and Bukhari, S.[U] (2023).Response to comments by Karig (2021) on Sookhan et al. "Lidar-based quantitative assessment of drumlin to mega-scale glacial lineation continuums and flow of the paleo Seneca-Cayuga paleo-ice stream". Quaternary Science Reviews 305, 107451.

Eyles, N., Bukhari, S.[G], **Sookhan, S.**, Ruscica, P.[G], and Paulen, R. (2023). LiDAR-based semi-automated mapping of drumlins and mega-scale glacial lineations of the Green Bay Lobe, Wisconsin, USA: ice sheet beds as glaciotribological systems. Earth Surface Processes and Landforms 48 (2), 295-321.

Sookhan, S. (2022). Exploring the Glaciodynamic Significance and Origin of Drumlins and Mega-Scale Glacial Lineations from High-Resolution Topographic Imagery. University of Toronto (Canada).

Sookhan, S., Eyles, N., and Bukhari, S.[U] (2022). Drumlins and mega-scale glacial lineations as a continuum of subglacial shear marks: A LiDAR based morphometric study of streamlined surfaces on the bed of a Canadian paleo-ice stream. Quaternary Science Reviews, 292, 107679.

Sookhan, S., Eyles, N., Bukhari, S.[U], and Paulen, R. (2021) LiDAR-based quantitative assessment of drumlin to mega-scale glacial lineation continuums and flow of the paleo Seneca-Cayuga paleo-ice stream. Quaternary Science Reviews, 263, 107003.

Bukhari, S., Eyles, N., **Sookhan, S**., Mulligan, R., Paulen, R., Krabbendam, M., & Putkinen, N. (2021). Regional subglacial quarrying and abrasion below hard-bedded palaeo-ice streams crossing the Shield–Palaeozoic boundary of central Canada: the importance of substrate control. Boreas, 50(3), 781-805.

Zhou, W., Eyles, N., **Sookhan, S.**, and Putkinen, N. (2021). Glaciotribology of drumlins and megascale glacial lineations: an enigma solved? Dizhi Xuebao/Acta Geologica Sinica, 95(8), 2306-2317.

Sookhan, S., Eyles, N., and Arbelaez-Moreno, L.[U] (2019). Reply to the comment by HAJ Russell on "Converging ice streams: a new paradigm for reconstructions of the Laurentide Ice Sheet in southern Ontario and deposition of the Oak Ridges Moraine". Canadian Journal of Earth Sciences, 56(8), 889-893.

Sookhan, S., Eyles, N., and Putkinen, N. (2018). LiDAR-based mapping of paleo-ice streams in the eastern Great Lakes sector of the Laurentide Ice Sheet and a model for the evolution of drumlins and MSGLs. GFF, 1-27.

Sookhan, S., Eyles, N., and Arbelaez-Moreno, L.[U] (2018). Converging ice streams: a new paradigm for reconstructions of the Laurentide Ice Sheet in southern Ontario and deposition of the Oak Ridges Moraine. Canadian Journal of Earth Sciences, 55(4), 373-396.

Eyles, N., Moreno, L.[U], and **Sookhan, S**. (2018). Ice streams of the Late Wisconsin Cordilleran Ice Sheet in western North America. Quaternary Science Reviews, 179, 87-122.

Eyles, N., Putkinen, N., **Sookhan, S.**, and Arbelaez-Moreno, L.[U] (2016). Erosional origin of drumlins and megaridges. Sedimentary Geology, 338, 2-23.

Sookhan, S., Eyles, N., Putkinen, N. (2016). LiDAR-based volume assessment of the origin of the Wadena drumlin field, Minnesota, USA. Sedimentary Geology, 338, 72-83.

Yu, P.[G], Eyles, N., **Sookhan, S.** (2015). Automated drumlin shape and volume estimation using high resolution LiDAR imagery (Curvature Based Relief Separation): A test from the Wadena Drumlin Field, Minnesota. Geomorphology, 246, 589-601.

Peer-reviewed conference proceedings

Eyles, N., Mulligan, R., Paulen, R., and **Sookhan, S**. (2018). Subglacial bedforms in southern Ontario: from flood paths to flow sets: AMQUA-CANQUA Post-conference field trip guidebook, August 2018.

11 PRESENTATIONS

Invited Talks and Conference Presentations (12; Mentored co-authors are underlined with Undergrad[U])

Sookhan, S., Eyles, N., Bukhari, S.[U], and Paulen, R. (2021) LiDAR-based quantitative assessment of drumlin to mega-scale glacial lineation continuums and flow of the paleo Seneca-Cayuga paleo-Ice Stream. Oral Presentation. GAC-MAC 2021; 2021 November; Online.

Sookhan, S. (2020). Planet Earth Online: Project Update and Experiences. Presented at: Sharing Online Teaching Ideas Meeting; 2020 May 21; Department of Physical and Environmental Sciences, University of Toronto, Canada.

Sookhan, S., Eyles, N. (2020). Field Experiences. Presented at: Adapting Experiential Learning for Remote Delivery Webinar Series; 2020 July 8; Office of the Vice-Provost, Innovations in Undergraduate Education, University of Toronto, Canada.

Sookhan, S. (2020). What machine learning tells us about ancient ice sheets. Oral Presentation. Centre for Planetary Sciences colloquium; 2020 March 13; University of Toronto, Toronto, Canada.

Sookhan, S., Eyles, N. (2019). Erosional origin of sediment-cored drumlins and megascale glacial lineations: upper tills as thickened erodent layers. Oral Presentation. 20th Congress of the International Union for Quaternary Research; 2019 July 25-31; Dublin, Ireland.

Sookhan, S., Eyles, N. (2019). Drumlin Mapping Using Deep Learning Object Detection Systems. Poster presented at: Drumlins - studies of a persisting enigma. 20th Congress of the International Union for Quaternary Research; 2019 July 25-31; Dublin, Ireland.

Sookhan, S., Eyles, N. (2019). Glaciological structure of a surge-induced Late Wisconsin paleo-ice stream: Two Medicine Glacier, eastern Rocky Mountains, Montana, USA. Poster session presented at: Palaeo-Ice streams: Forms, processes and palaeoglaciology. 20th Congress of the International Union for Quaternary Research; 2019 July 25-31; Dublin, Ireland.

Sookhan, S., Eyles, N. (2019). Drumlin Mapping Using Deep Learning Object Detection Systems. Oral presentation. 5th Doctoral Environmental Science Colloquium; 2019 May 2-3; University of Toronto, Toronto, Canada.

Sookhan, S., Eyles, N. (2017). Exploring the origins of drumlins and megascale glacial lineations. Poster session presented at: Glacial Processes and Deposits: Advances and Applications. 2017 GAC-MAC annual meeting; 2017 May 14-18; Queen's University, Kingston, Canada.

Sookhan, S., Eyles, N. (2017). Exploring the origins of drumlins and megascale glacial lineations. Oral presentation. 3rd Doctoral Environmental Science Colloquium; 2017 May 7-8; University of Toronto, Toronto, Canada.

Eyles, N., **Sookhan, S**., Putkinen, N. (2015). Erosional Origin for Drumlins by Subglacial Erodent Layers: A Tribological Model. Oral Presentation. 2015 AGU-GAC-MAC-CGU Joint Assembly; 2015 May 3-7; Montreal, Canada.

Sookhan, S., Gao, R. (2013). The technological present is the key to the past: Using mobile and web devices to teach Geosciences. Presented at: Facies analysis revisited: into the third and fourth dimension; 2013 November 8; McMaster University, Hamilton, Canada.

Contributed (8; Mentored co-authors are underlined with Undergrad[U], Graduate[G])

Grill, G., Tickner, D., **Sookhan, S.**, Lehner, B., Thieme, M., Opperman, J. (2024) A standardized index to monitor trends in global and regional river connectivity. Oral Presentation. AGU 2024; 2024 December; Washington, United States.

Daxberger, H., Kennedy, K., **Sookhan, S.**, Moumblow, R. (2021) Comparing student learning achievements using traditional versus virtual microscopes for Mineralogy and Petrology. Oral Presentation. GAC-MAC 2021; 2021 November; Online.

Daxberger, H., Kennedy, K., **Sookhan, S.**, Moumblow, R. (2021) Virtual Petrography - Expanding the Microscope Laboratory with a New Interactive Online Tool. Oral Presentation. Earth Educators' Rendezvous; 2021 July; Online.

Bukhari, S.[U], **Sookhan, S.**, Eyles, N., Paulen, R. (2020) Geomorphology of a Late Wisconsin Hard-Bedded Ice Stream Landsystem, Ontario, Canada Revealed by High-Resolution LiDAR Mapping. Oral Presentation. GSA 2020 Connects Online; 2020 January; Online.

Ruscica, P.[U], Eyles, N., **Sookhan, S.**, Bukhari, S.[U] (2020) Erosionally-streamlined Subglacial Bedforms, and Ice Marginal Pressed Moraines on the Bed of a Paleo Ice Stream: Green Bay Lobe, Wisconsin USA: Lidar Mapping of a Soft-bed Ice Stream Landsystem. Oral Presentation. GSA 2020 Connects Online; 2020 January; Online.

Eyles, N., **Sookhan, S.** (2017). The Oak Ridges Moraine was deposited between two fast-flowing ice streams. Oral Presentation. 2017 GAC-MAC annual meeting; 2017 May 14-18; Queen's University, Kingston, Canada.

Arbelaez-Moreno, L.[U], Eyles, N., **Sookhan, S.** (2017). Ice streams within the last Cordilleran Ice Sheet. Poster session presented at: Glacial Processes and Deposits: Advances and Applications. 2017 GAC-MAC annual meeting; 2017 May 14-18; Queen's University, Kingston, Canada.

Sookhan, S., Eyles, N., Putkinen, N. (2015). LiDAR-based Volume Assessment of the Wadena Drumlin Field and End Moraines, Minnesota, USA: Evaluating an Erosional Origin for Megascale Glacially Lineated Terrains. Poster session presented at: Ice stream bed processes. 2015 AGU-GAC-MAC-CGU Joint Assembly; 2015 May 3-7; Montreal, Canada.

12 RELEVANT SKILLS

Research: Able to lead and plan research projects as demonstrated by strong publication record. Willing and able to work outdoors for extended periods. Able to take and log detailed notes, photographs, samples, and other required data for field research. Licensed and able to operate Unmanned Aerial Vehicles for remote sensing data collection and aerial photography.

Technical:

- Geospatial analysis software such as, ArcMap (including extensions such as Spatial Analyst, 3D Analyst, Linear Referencing, etc.), ArcGIS Pro, ArcGIS Online (Including Web App Builder, Operations Dashboard, Story Maps, Collector for ArcGIS),QGIS, Manifold System, Agisoft Metashape, WebODM Drone Software, Google Earth, Google Maps API
- Educational authoring software such as Articulate Storyline 2, Adobe Captivate, Adobe Photoshop and Illustrator, Camtasia, and Canvas and BlackBoard LMS'.
- Programming and Scripting languages such as Java, Python (Including NumPy, Pandas, PyTorch, TensorFlow, Keras, TileCache, Xarray, Geopandas, Rasterio, rioxarray, Dask, Cartopy, Django, Flask), HTML, JavaScript (including Leaflet, TileMill, Cesium StoryMapJS, PanolensJS, jQuery, Node.js, Chart.js), VBA, CSS, and JQuery.
- Cloud computing including Microsoft Azure and Google Colab

Communication: Team oriented with good communication skills. Experienced with creating and harnessing useful collaborations with other researchers and professionals. Clear, purposeful writing style demonstrated in scientific research papers and strong public speaking skills exhibited in conference presentations and invited talks.