

Keagan Hudson Rankin

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Languages

English, French

Education

University of Toronto (U of T); Faculty of Applied Science & Engineering *Sept 2021- ongoing*
M.A.Sc (Civil Engineering), GPA: 4.0 (4.0 scale)

University of New Brunswick (UNB); Faculty of Engineering *Sept 2017–June 2021*
B.Sc. Eng (Civil Engineering), GPA: 4.2 (4.3 scale) – First Division

Recognitions and Awards

- C.W. Bowman Graduate Scholarship in Energy Research; 4,400\$ (U of T) *April 2022*
- NSERC Alexander Graham Bell Award, CGS M (U of T) *Sept 2021-Sept 2022*
- CIVMIN Graduate Merit-Based Entrance Scholarship; 5,000\$ (U of T) *Sept 2021-Sept 2022*
awarded to top 5 incoming CIVMIN graduate students.
- Ontario Graduate Scholarship; declined (U of T) *Sept 2021*

- National Science and Engineering Research Council *Apr 2020-Aug 2020*
Undergraduate Student Research Award (UNB)
- National Science and Engineering Research Council *Apr 2019-Aug 2019*
Undergraduate Student Research Award (University of Victoria)
- National Science and Engineering Research Council *Apr 2018-Aug 2018*
Undergraduate Student Research Award (UNB)

- Esch Foundation Scholarship; 6,000\$ (Transportation Association Canada) *Sept 2020*

- NSERC CGS M; declined (UNB) *Sept 2021*
- Lieutenant Governor of New Brunswick Silver Medal; *Apr 2021*
Civil Engineering Nominee (UNB). Awarded to most outstanding graduating student in the faculty of engineering.
- D. Malcolm Jeffrey Memorial Prize (UNB) *Apr 2021*
- Best final design report; team nominated for CSCE *Apr 2021*
student poster design competition (UNB)
- Rudy and Theresa Esterbauer Research Fund; 5,000\$ (UNB) *Sept 2020-Apr 2021*
- William P. Cooper Scholarship (UNB) *Sept 2020*
- The UNB Scholarship (UNB) *Sept 2020*
- Stanley B. Cassidy Memorial Engineering Scholarship (UNB) *Sept 2019*
- Purves Loggie Prize (UNB) *Sept 2019*
- William and Edward Akerley Memorial Scholarship (UNB) *Sept 2019*
- Edwin Jacob Special University Scholarship (UNB) *Sept 2017, 2018, 2019*
- Dean's List (UNB) *Dec 2018-Apr 2021*

Employment Experience

University of Toronto; Toronto, ON

Graduate Teaching Assistant

Sept 2021-Ongoing

- Led weekly tutorials and office hours for the CIV100: Mechanics. Developed and completed example problems in a lecture style and answered students' questions on course material.
- Helped address marking and technical concerns online and in person.

University of New Brunswick; Fredericton, NB

Research Assistant

Apr 2021-Aug 2021

- Created a supply chain simulation model and discrete event simulation for shipment of building modules to Canada's northern communities.
- Researched ways of delivering design-build bids faster using construction technologies.

University of New Brunswick; Fredericton, NB

Undergraduate Researcher

Apr 2020-Aug 2020

- Helped create a data pipeline for infrastructure health monitoring projects across New Brunswick using Python, SQL, and other programming languages.
- Performed field work collecting accelerometer data using a "drive-by" method to inspect roads and bridges. Reviewed literature and processed the data using Python and Excel.
- Helped set up permanent sensor installations for infrastructure health monitoring projects across the province. Contributed to the installations' digital framework using LabVIEW.

University of Victoria; Victoria, BC

Undergraduate Researcher

Apr 2019-Aug 2019

- Recruited to help the Civil Engineering Department research the implementation of a new course structure for their undergraduate program focused on sustainable design and construction.
- Performed research independently from digital and physical sources. Gained knowledge of green construction theories and practices.
- Developed a teaching focused model for sustainability and design thinking that formed the framework of the new course structure. Prepared a report detailing the model and structure.
- Helped plan the new course timetable from the perspective of the model, generated ideas for course activities and projects.

University of New Brunswick; Fredericton, NB

Undergraduate Researcher

Apr 2018-Aug 2018

- Joined a multi-disciplinary team with other students and researchers as a part of the Mactaquac Aquatic Ecosystems Study (MAES) group.
- Performed lab work in UNB's hydrology lab and field work on the Saint John River; gained experience on-site at the Mactaquac Hydroelectric Generating Station. Captured flow data that was used to render a 3-D model of the Mactaquac dam facility.
- Developed a model to aid NB power in maintaining acceptable levels of passing suspended solids at the Generating Station.
- Participated in extra tasks such as moving heavy equipment and field/lab tool troubleshooting.

-Used Linux-based software to build a “virtual reality sandbox” teaching tool now used in undergraduate classes.

Fredericton Rowing Club (FRC); Fredericton, NB

Masters Coach

Jan 2016-Jan 2017

- Worked independently to coordinate and plan workouts for a large group of athletes aged 25-65.
- Lead instructional sessions, communicated technique to athletes using various approaches.
- Grew the masters rowing program at FRC by attracting and retaining committed team of rowers.

Affiliations/Memberships

Academic Director: U of T CIVMIN Graduate Society

Engineering in Training: APEGNB

Member: Canadian Society for Civil Engineering

Member: Rowing Canada

Member: International Society for Industrial Ecology

Former Member: UNB CISC-ICCA Canadian National Steel Bridge Competition Team

Former Member: UNB Rowing Club

Volunteer Activities

Fredericton Rowing Club (Jan 2016 – Dec 2018):

As a member of the Fredericton Rowing Club, I participated in fundraising and community events to help support the club. This included assisting in bottle drives, public exhibitions/outreach days, and in the club's middle school rowing program.

Canadian Society for Civil Engineering (Jun 2018):

I volunteered at the CSCE 2018 Annual Conference in Fredericton. I greeted members at the airport, aided in the organization of research presentations, and helped with miscellaneous tasks when needed.

Shad Mentor (Jul 2021):

I volunteered to help mentor grade 10 and 11 students in the Shad program at UNB. Over the course of a couple weeks, I answered the Shads' questions and helped three teams of students conceptualize, design, and communicate a design project related to freshwater sustainability.

U of T CIVMIN Graduate Society (Sep 2021-ongoing):

As academic director of the CivMinGSA, I helped coordinate events that advanced CIVMIN graduate students' academic and career opportunities such as a thesis competition. I also attended other CivMinGSA events and helped with the technical operation of the society.

Publications

Hudgins, J., Haralampides, K. Dolan, K., Rankin, K., Yamazaki, G. (2019). Results and Analysis of the 2018 Suspended Solids Field Program in the Mactaquac Headpond, Saint John River, NB. University of New Brunswick

Thomas M. Froese, David N. Bristow, Keagan H. Rankin. (2021). Towards a Sustainability-Centred Design Curriculum in Civil Engineering. EESD 2020/2021 Conference Proceedings. Engineering Education for Sustainable Development (EESD2020/2021).

Conference Date: 2021/6

Editors: John Fitzpatrick, Ed Byrne

Forthcoming:

Rankin, K. H. Zhuo, C., Lei, Z., Rizaei, S., Searle, B., Ene, C., Amuno, S. (2022) Pull-based Simulation Modeling for Modular Construction Supply Chain Analysis: A Case Study in Northern Canada.

Proceedings of the Canadian Society of Civil Engineering Annual Conference 2022. (STATUS: submitted)

Certifications, Activities, Achievements

New Brunswick/British Columbia Rowing

-Former member of Team NB rowing; Eastern Canadian champions, finalist at 2017 Canada Games.

-Former member of Victoria City Rowing Club and Fredericton Rowing Club; three-time annual “top male rower” at Fredericton Rowing Club.

-Member of UNB Rowing Club; three-time Atlantic Canadian University champion (Lwt Men’s 1x, Men’s 2x, Men’s 2x).

First Aid & CPR/AED Certification; Red Cross, Workplace Standard (2018-2019).

Boaters License; BoatSmart.

Coaching Certification; Rowing Canada Association (RCA). Including the completion of the “making ethical decisions” module.

WHIMIS Certification; Facilitated through the UNB biology department.

Coding; Python (+Common Machine Learning Libraries), SQL, MATLAB, Visual Basic, R.

Engineering Software; SAP2000, AutoCAD, Civil3D, REVIT, EPANET, LabView, OnScreenTakeoff

Other Interests

Ancient Greek/ Modern American Literature

History of Physics

Nutrition Science and Crohn’s Disease

Bike Touring