Alexandra K. S. Kasper

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HIGHLIGHTS

- Passionate about STEM, education, and creating engaging learning experiences.
- Energized by fast-paced and people-centred work environments.
- Experience leading the development and implementation of complex projects.
- Collaborative and independent writing experience with scientific reports, progress reports, grant applications, project planning, and conference materials.

EDUCATION

Master of Education, Simon Fraser University, 2019
Educational Technology and Learning Design
GPA: 4.1/4.33
Coursework in Educational Psychology, Instructional Design, and Learning Theories.

Master of Science, Simon Fraser University, 2017
Physics (Biophysics)
GPA: 4.15/4.33
Coursework in Biophysics, Physics, and Mathematics.
Thesis: "Energy-speed-accuracy tradeoffs in driven, stochastic, rotary machines"
Supervisor: David Sivak

Honours Bachelor of Science, McMaster University, 2015 *Honours Integrated Science (iSci) with concentration in Biophysics* GPA: 11.6/12 (*summa cum laude*)
Coursework in Earth Sciences, Chemistry, Biology, Physics, Mathematics, Computer Programming, and Science Literacy.
Thesis: "The effects of viscosity on the swimming dynamics of *C. elegans*"
Supervisor: Kari Dalnoki-Veress

EXPERIENCE

Treefrog Accelerator, Treefrog Inc.
Program Manager *June 2021 - January 2022*

- Manage all aspects of the 5-week online Treefrog Accelerator program, coordinating with 44 guest speakers and 15 mentors to deliver over 200 hours of live training to 77 startups in 2021.
- Execute interactive online public events for diverse stakeholders on Remo.
- Collaborate with partners in government and post-secondary weekly, including providing qualitative and quantitative metrics of program success.

Mom Has to Poop
Founder September 2020 - Present

- Empowering new moms through a book of positive affirmations, online community, and live discussions with expert speakers.
- Manage all operations including book production, website, and order fulfilment.

Beedie School of Business, Simon Fraser University
Student Engagement Coordinator *September 2019 - June 2021*
- Led the development of a two-month online program for over 200 undergraduate students featuring 5 asynchronous modules, live guest speakers, and a two-round case competition supported by over 50 industry expert judges.
- Consolidated five years of data to report deeper insights into program performance.

Kasper Education
Founder *March 2019 - August 2019*
- Responsible for logistics, marketing, risk management, budget, and execution of a one-week enrichment program for youth that ran in August 2019.
- Developed and delivered project-based computational research curriculum using Jupyter Notebooks.

Faculty of Applied Sciences, Simon Fraser University
Events and Marketing Coordinator *August 2018 - August 2019*
Outreach and Community Engagement Coordinator *January 2019 - August 2019*
- Design and run workshops for kids and teachers about coding and engineering.
- Established the outreach volunteer training program following a blended model.
- BC Ambassador for Technovation, an international app development and entrepreneurship competition for girls: coordinate all program logistics, support girls and mentors, and prepare reports for sponsors.

Faculty of Science, Simon Fraser University
Teaching Assistant for Science Communication: An Introduction Spring 2018
- Weekly tutorials and guest lecture "Teaching Science With Hands-on Activities".
- Work with the instructor to develop rubrics and support student learning.
- Set-up the course content on Canvas and tech-support for instructor.

School of Computing Science, Simon Fraser University
Invent the Future Program Coordinator *October 2017 - August 2018*
- Plan and execute the inaugural year of a 2-week overnight summer enrichment Artificial Intelligence program for teen girls including managing budget of $90,000.
- Manage hiring and training of 14 staff members.
- Work with the Program Director to develop curriculum and contribute to building a challenging yet supportive learning environment.
- Completed research ethics training and facilitated data collection on participants.

Let's Talk Science at Simon Fraser University
Site Coordinator *April 2016 - May 2018*
- Develop and deliver volunteer training on evidence-based teaching best practices.
- Communicate with stakeholders to maintain and build relationships through email, telephone, in-person discussions, and progress presentations.

Department of Physics, Simon Fraser University
Research Assistant September 2015 - August 2017

Department of Physics and Astronomy, McMaster University
Research Assistant Summers 2014 & 2015
Teaching Assistant for Physics of Living Systems Fall 2014

Thunderhouse Forest Services
Tree Planter Summers 2012 & 2013

Durham District School Board
Classroom Assistant Summer 2011

VOLUNTEER EXPERIENCE

Girl Guides of Canada
Unit Leader 2007 - Present

Let's Talk Science at SFU
School Program Presenter Sept. 2015 - May 2018

Girls in Science at McMaster
Group Leader 2015
Workshop Leader 2014

iSci High School Workshop at McMaster
Mentor and Program Development 2015
Chair 2014
Chair of Grade 9/10 Program 2013
Program Development 2012

Youth Engaging in Science (YES) Mentorship Program at McMaster
Mentor 2012/13

McMaster Undergraduate Physics Society
VP Academic 2013/14 and 2014/15

GENERAL AUDIENCE TALKS

ATP Synthase, The Most Impressive Machine on Earth
Science Slam @ Et Al Too: Ultimate Bar Science Night (20/09/2017)
→ *1st place*

Work-Speed-Accuracy Tradeoffs in Molecular Machines
3MT Western Regional Competition, University of Saskatchewan (28/04/2017)
3MT Competition, Simon Fraser University (27/03/2017)
→ *1st place, SFU-wide competition.*
Science 3MT Competition, Simon Fraser University (09/03/2017)
→ *Overall winner chosen by judges.*

CONFERENCE PRESENTATIONS

L. Amouzandeh, D. De Guzman, **A. Kasper**, P. MacDowell, Q. Wang, J. Wong. *Creating AR Experiences with Students to Enrich Curriculum and Build Community*. Congress 2019 of the Humanities and Social Sciences, University of British Columbia (02/06/2019)

A. Kasper, A. Ward. *STEAM Support at Home: Empowering Parents and Role Models of Girls*. BC Science Outreach Workshop, TELUS World of Science (04/04/2019)

A. Kasper, D. Sivak. *Work-Speed-Accuracy Tradeoffs in Molecular Machines*. Frontiers in Biophysics, University of British Columbia (16/06/2017)

A. Kasper. *F_1-ATPase conformational cycle from simultaneous single-molecule FRET and rotation measurements*. Biophysics Journal Club, Simon Fraser University (24/05/2016)

A. Kasper, M. Backholm, R. Schulman, and K. Dalnoki-Veress. *The Effects of Viscosity on the Swimming Dynamics of C. elegans*. Synthesis: Integrated Science Symposium, McMaster University (30/03/2015)

A. Kasper, M. Backholm, R. Schulman, and K. Dalnoki-Veress. *Tethered Microswimmers: Characterizing the Swimming Dynamics of a Worm*. Canadian Undergraduate Physics Conference, Queen's University (25/10/2014)

A. Kasper, S. Symons, and J. Hayward. *Using NetLogo to Model Cancer Radiation Treatment*. Undergraduate Physics Colloquium Series, McMaster University (03/10/2014)

A. Kasper, S. Symons, and J. Hayward. *A NetLogo Model for Fractionated Radiation Treatment*. Synthesis: Integrated Science Symposium, McMaster University (08/04/2014)

PUBLICATIONS

Modeling work-speed-accuracy trade-offs in a stochastic rotary machine. **A. K. S. Kasper** and D. A. Sivak. Phys. Rev. E. **101**, 032110 (2020)

The Effects of Viscosity on the Undulatory Swimming Dynamics of C. elegans. M. Backholm, **A. K. S. Kasper**, R. D. Schulman, W. S. Ryu, and K. Dalnoki-Veress. Physics of Fluids **27**, 091901 (2015)

POSTERS

A. Kasper, D. Sivak. *Energy-Speed-Accuracy Trade-Offs in Driven Stochastic Rotary Motors*. Physics Departmental Poster Competition, Simon Fraser University (03/03/2017)
→ *Voted one of top three posters (unranked).*

A. Kasper, D. Sivak. *Energy-Speed-Accuracy Trade-Offs in Driven Stochastic Rotary Motors*. Engineering Approaches to Biomolecular Motors: From in vitro to in vivo, Simon Fraser University (16/06/2016)

CONFERENCE COMMITTEES

Science Writers and Communicators of Canada: On the Edge
SFU Harbour Centre and TELUS World of Science, April 12-14, 2018
Co-chair

Let's Talk Science Western Regional Outreach Conference
Simon Fraser University, February 9 - 11, 2018
Chair **Physics Careers and Networking Conference (The PiCNiC)**
Simon Fraser University, May 26, 2017
Committee member

Frontiers in Biophysics 2016
Committee member

CONFERENCE ATTENDANCE

Science Writers and Communicators of Canada: On the Edge
Vancouver, April 12-14, 2018

Let's Talk Science Western Regional Outreach Conferences
Simon Fraser University, February 9 - 11, 2018
University of Lethbridge, February 10 - 12, 2017

BC Science Outreach Workshops
TELUS World of Science, March 5, 2018 and March 6, 2017

Frontiers in Biophysics
University of British Columbia, June 16, 2017 and March 14, 2015

Engineering Approaches to Biomolecular Motors: From in vitro to in vivo
Simon Fraser University, June 14 - 17, 2016

Let's Talk Science National Outreach Conference
Western University, June 1 - 5, 2016

Canadian Undergraduate Physics Conference (CUPC)
Queen's University, October 23 - 26, 2014

Canadian Conference for Undergraduate Women in Physics (CCUWiP)
McGill University, January 10 - 12, 2014

Synthesis: Integrated Science Symposium
McMaster University, April 2012, 2013, 2014 & 2015

AWARDS & SCHOLARSHIPS

* Denotes competitions requiring a written component.

Winner of the SFU Three Minute Thesis Competition ($1,500)	March 2017
Winner of the SFU Science Three Minute Thesis Competition ($500)	March 2017
Winner of the SFU Physics Departmental Poster Competition ($100)	March 2017
NSERC CGS-Master's at Simon Fraser University* ($17,500)	Starting May 2016
Graduate Dean's Entrance Scholarship ($3,000)	Fall 2016
SFU Special Graduate Entrance Scholarship ($6,000)	Fall 2015
Provost Prize of Distinction, SFU ($10,000)	Starting Fall 2015
C.D. Nelson Memorial Graduate Entrance Scholarship, SFU ($12,000)	Fall 2015
SSHRC CGS-Master's at The University of British Columbia* (Declined)	Fall 2015
Valedictorian for the McMaster Physics Class of 2015	2015
NSERC USRA at McMaster University* ($8,000)	Summer 2014
The Marnie Spears Scholarship* ($1,200)	2014
The Dr. Harry Lyman Hooker Scholarship ($1,500/ year)	2012, 2013, & 2014
The J.L.W. Gill Prize ($325)	2014
A.B. McLay Scholarship in Physics ($500)	2013
The Mabel Stoakley Scholarship*($425)	2013
The Gwen George Award* ($1,500)	2012
Bronze Governor General's Academic Medal	2011