

# MARK PAMPUCH

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## EDUCATION

### Master of Science

Expected 08/2023

Western University / Schulich School of Medicine and Dentistry (London, ON)

- Master of Science candidate in Biochemistry
- Supervisor: Bogumil Karas

### Master of Science

09/2020-12/2020 (withdrawn from program)

University of British Columbia (Vancouver, BC)

- Master of Science candidate in Botany

### Bachelor's Degree (Hons): Science

04/2020

Western University (London, ON)

- Honors Specialization in Genetics

### Ontario Secondary School Diploma

06/2016

Marshall McLuhan Catholic Secondary School (Toronto, ON)

- Ontario Scholar Distinction
- Extended French Certificate
- Gifted Program (Grade 9 – 12)

## PROFESSIONAL EXPERIENCE

### Summer Researcher

04/2021 – 08/2021

Western University / Schulich School of Medicine and Dentistry (London, ON)

- Supervisor: Dr. Bogumil Karas
- Project title: Towards a synthetic algal chloroplast: a streamlined platform for creating designer chloroplast genomes in *Phaeodactylum tricornutum*.

### Snowboarding Instructor

12/2020 - 04/2021

Cypress Mountain Snow School – Cypress Mountain (Vancouver, BC)

### Research Participant / Thesis Student

06/2019 – 04/2020

London Research and Development Centre – Agriculture and AgriFood Canada (London, ON)

Summer 2020 contract voided  
due to COVID-19

- Supervisor: Dr. Krzysztof Szczygłowski
- Project title: Shaping the root: assessing a dose dependent role of the *Lotus japonicus* *HAR1* receptor kinase gene

### Summer Student

06/2019 – 08/2019

Biochemistry Summer Research Program – Western University (London, ON)

- Supervisor: Dr. Bogumil Karas

### Snowboarding Instructor

01/2019 – 03/2019,

Boler Mountain Snow School – Boler Mountain (London, ON)

12/2019 – 03/2020

- Beginner – Intermediate skill range
- 70+ students across group and private lessons

### Internship

05/2018 – 08/2018

MolecuLight Inc. – MaRS Discovery District (Toronto, ON)

- Case report forms: Data collection and processing
- Microbiological data analysis
- Literature reviews: Microbiology and Healthcare Economics
- Market research
- Competitor analyses
- Social media content strategy
- Website design aid and QA

<b>Private Snowboarding Instructor</b>	12/2016 – 03/2017
▪ Single client at novice skill level	
<b>Private Tutor</b>	06/2014 – 08/2016
▪ Primary focuses: Biology and Chemistry	
▪ Secondary focuses: Mathematics, Physics, and English	

## EXTRACURRICULAR INVOLVMENT

<b>2023 Ivey Business Plan Competition Semi-Finalist</b>	11/2022 – 01/2023
<i>Morrisette Institute for Entrepreneurship – Ivey Business School (London, ON) ⚡</i>	
▪ Finalist amongst two other student “co-founders” in North American business plan competition	
▪ Business plan entailed developing roadside drug screening devices for law enforcement services	
<b>London Track3 Adaptive Snow School Instructor</b>	12/2019 – 03/2020
<i>London Track3 Ski School – Boler Mountain (London, ON) ⚡</i>	12/2021 – 03/2022
▪ Snowboarding instructor for children and adults with physical, developmental, visual, and hearing challenges	12/2022 – Present
<b>Community Representative</b>	
<i>Biochemistry Graduate Students Association – Western University (London, ON) ⚡</i>	09/2021 – Present
▪ Entailed promoting department or making a positive impact in the local community	
♦ Organized donation drive in partnership with Diabetes Canada	
♦ Organized biochemistry exhibit with Science Rendezvous	
<b>Science Rendezvous Organizer</b>	
<i>Science Rendezvous – Western University (London, ON) ⚡</i>	07/2022
▪ Organized booth for Biochemistry Department to promote science to children and parents	
▪ Performed hands-on DNA extraction demos from fruit	
<b>cGEM Competition Judge</b>	10/2021
<i>cGEM ⚡</i>	
▪ Judge for national biotechnology competition in Canada	
<b>Community Representative</b>	10/2020 – 04/2021
<i>SynBio Canada ⚡</i>	
▪ Update SynBio Canada executives on synthetic biology research at UBC and BC province	
<b>iGEM Graduate Advisor</b>	10/2020 – 12/2020
<i>UBC iGEM – University of British Columbia (Vancouver, BC) ⚡</i>	
▪ Aid in different aspects of UBC undergraduate iGEM research project	
<b>Council Member (Botany Department Representative)</b>	09/2020 – 12/2020
<i>Graduate Student Society – University of British Columbia (Vancouver, BC) ⚡</i>	
▪ Speaker on behalf of department needs to student government body	
▪ Elected as representative by Botany Graduate Student Association	
▪ Member of the elections committee	
<b>Writer / Researcher</b>	09/2018 – 04/2019
<i>Western University Technology Review – Western University (London, ON) ⚡</i>	
▪ Writing articles on novel technologies for a local audience	
▪ Sustainability department	
<b>Chito Ryu Karate Training</b>	2004 – 2016
<i>Higashi Dojo (Toronto, ON) ⚡</i>	
▪ 1 <sup>st</sup> Dan Black Belt in Chito Ryu Karate	
▪ Weekly senior and youth group training	
▪ Tournament competitions	
♦ Kata: 4 gold, 3 bronze; Kumite: 3 gold, 1 silver, 3 bronze	
▪ Various demonstrations at other dojos and events	

<b>Snowboarding Team</b> <i>Marshall McLuhan Catholic Secondary School (Toronto, ON)</i> <ul style="list-style-type: none"> <li>Participated in racing events at Mount St. Louis Moonstone (Coldwater, ON)</li> </ul>	2014 – 2016
<b>CASI Level 1 Program</b> <i>Canadian Association of Snowboard Instructors – Lakeridge Ski Resort (Uxbridge, ON)</i> <ul style="list-style-type: none"> <li>Obtained CASI Level 1 Snowboard Instructor Certification</li> </ul>	12/2015
<b>Staff in Training</b> <i>Seneca Summer Camps – Seneca College (Toronto, ON)</i> <ul style="list-style-type: none"> <li>Mini-Multi's Sports Camp (ages 4 – 6)</li> <li>Engaging enthusiastically w/ children</li> <li>Planning and organizing weekly activities</li> </ul>	07/2015 – 08/2015
<b>Model United Nations (CHAMUN)</b> <i>Chaminade College School (Toronto, ON)</i> <ul style="list-style-type: none"> <li>Researching, debating, and cooperative problem-solving w/ regards to contemporary political issues</li> </ul>	04/2015
<b>Leader in Training Program</b> <i>Seneca Summer Camps – Seneca College (Toronto, ON)</i> <ul style="list-style-type: none"> <li>Focuses: management, decision making, and problem-solving skills</li> </ul>	07/2014

## AWARDS

<b>Canada Graduate Scholarships – Master's Program</b> <i>Issued by the Natural Sciences and Engineering Research Council of Canada (NSERC)</i> <ul style="list-style-type: none"> <li>\$17,500</li> </ul>	09/2022
<b>Ontario Graduate Scholarship</b> <i>Issued by the Ontario Government</i> <ul style="list-style-type: none"> <li>\$15,000</li> <li>Awarded but declined due to conflict with NSERC award</li> </ul>	09/2022
<b>Ontario Graduate Scholarship</b> <i>Issued by the Ontario Government</i> <ul style="list-style-type: none"> <li>\$15,000</li> </ul>	09/2021
<b>British Columbia Graduate Scholarship</b> <i>Issued by the Government of British Columbia</i> <ul style="list-style-type: none"> <li>\$15,000</li> </ul>	09/2020
<b>Deans Honor List</b> <i>Issued by Western University</i>	2017 – 2020
<b>Western Scholarship of Distinction</b> <i>Issued by Western University</i> <ul style="list-style-type: none"> <li>\$1000</li> </ul>	09/2016

## PUBLICATIONS

- Pampuch, M., Walker, E.J.L., and Karas, B.J. (2021) Towards synthetic diatoms: The *Phaeodactylum tricornutum* Pt-syn 1.0 project. Current Opinion in Green and Sustainable Chemistry. <https://doi.org/10.1016/j.cogsc.2022.100611>

## CONFERENCES / PRESENTATIONS

<b>2023 Bioenergy Conference</b> <i>Webinar</i> <ul style="list-style-type: none"><li>▪ Speaker for 15 min presentation</li><li>▪ Title: Genetic engineering advances in diatoms</li></ul>	01/2023
<b>SynDiatoms 2022 Workshop</b> <i>Webinar</i> <ul style="list-style-type: none"><li>▪ Speaker for 15 min presentation</li><li>▪ Title: Optimizing transformation methods for <i>Phaeodactylum tricornutum</i></li></ul>	12/2022
<b>Nanopore Community Meeting 2022</b> <i>Metropolitan Pavilion (New York City, NY)</i> <ul style="list-style-type: none"><li>▪ Attendee for the workshop: An introduction to machine learning for Oxford Nanopore data, entailed;<ul style="list-style-type: none"><li>♦ Building a basic basecaller using HMM's</li><li>♦ Building a variant caller for using a convolutional neural network in PyTorch.</li></ul></li></ul>	12/2022
<b>Canada SynBio 2022</b> <i>MaRS Discovery District (Toronto, ON)</i> <ul style="list-style-type: none"><li>▪ Submitted abstract and selected for both oral (1/4 presenters) and poster presentations</li><li>▪ Title: Towards synthetic diatoms: The Pt-syn 1.0 project.</li><li>▪ Video: <a href="https://www.linkedin.com/feed/update/urn:li:activity:6938749677995470848/">https://www.linkedin.com/feed/update/urn:li:activity:6938749677995470848/</a> ↗</li></ul>	05/2022
<b>Ontario Biology Day</b> <i>McMaster University (Hamilton, ON)</i> <ul style="list-style-type: none"><li>▪ Scheduled for 15 min presentation</li><li>▪ Title: Shaping the root: assessing a dose dependent role of the <i>Lotus japonicus</i> <i>HAR1</i> receptor kinase gene</li></ul>	03/2020 <i>Cancelled due to COVID-19</i>

## CERTIFICATIONS

<b>edX Verified Certificate for CS50's Introduction to Computer Science</b> <i>Issued by HarvardX</i> <ul style="list-style-type: none"><li>▪ Credential ID: <a href="#">b2f0e720dcab45dabf14307458bffba8</a> ↗</li></ul>	11/2022
<b>CASI Level 2 Snowboard Instructor Certification</b> <i>Issued by the Canadian Association of Snowboard Instructors (CASI-ACMS)</i>	03/2021
<b>Smart Serve</b> <i>Issued by Smart Serve Ontario</i> <ul style="list-style-type: none"><li>▪ Credential ID: e180222444625RS</li></ul>	02/2018
<b>CASI Level 1 Snowboard Instructor Certification</b> <i>Issued by the Canadian Association of Snowboard Instructors (CASI-ACMS)</i>	12/2014

## PROGRAMMING AND I.T. KNOWLEGE

- **Python** – Intermediate
- **R and R studio** – Intermediate
- **bash/Unix** – Intermediate
- **Git/GitHub** – Intermediate
- **SQL** – Novice
- **JavaScript** – Novice
- **HTML** – Novice
- **CSS/Sass** – Novice
- **C** – Basic

## TECHNICAL SKILLS

<u>Computer Software Experience</u>		<u>Laboratory Experience</u>	<u>Technique Familiarity</u>
▪ <b>Microsoft Office</b> (including <b>Excel</b> ) – Proficient	▪ <b>PyMOL</b> – Novice	▪ DNA / RNA isolation	▪ Western Blotting
▪ <b>Krona</b> – Proficient	▪ <b>DNASTAR</b> – Novice	▪ DNA assembly / delivery	▪ Agroinfiltration
▪ <b>NCBI BLAST</b> – Intermediate	▪ <b>Adobe Photoshop</b> – Intermediate	▪ Microbiology techniques	▪ Hairy root transformation
▪ <b>SnapGene</b> – Intermediate	▪ <b>Adobe Illustrator</b> – Intermediate	▪ Bisulfide Conversion	▪ GUS staining
▪ <b>ML-DSP</b> – Novice	▪ <b>Sony Vegas Pro</b> – Intermediate	▪ Sanger Sequencing	▪ Minisatellite/Microsatellite analysis
▪ <b>FigTree</b> – Novice	▪ <b>Audacity</b> – Intermediate	▪ qRT-PCR	▪ Fluorescence <i>in situ</i> hybridization
▪ <b>Benchling</b> – Proficient		▪ CRISPR–Cas editing	▪ Chaos Game Representation
		▪ Nanopore Sequencing	
		▪ Bioinformatics for genomics	

## LANGUAGES

English (Native)  
Speaking: ★★★★★  
Listening: ★★★★★  
Reading: ★★★★★  
Writing: ★★★★★

French  
Speaking: ★☆☆☆☆  
Listening: ★★☆☆☆  
Reading: ★★★★★  
Writing: ★★☆☆☆

Polish  
Speaking: ★★★★★  
Listening: ★★★★★  
Reading: ★★☆☆☆  
Writing: ★☆☆☆☆

## ADDITIONAL SKILLS/HOBBIES/PASSIONS

- Photo and video editing
- Rock climbing
- Snowboarding
- Web development
- Resistance training
- Fitness enthusiast