

# 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: Dr. 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09/2020-12/2020 (withdrawn from program)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 cancelled 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

**Private Snowboarding Instructor**

12/2016 – 03/2017

- Single client at novice skill level

**Private Tutor**

06/2014 – 08/2016

- Primary focuses: Biology and Chemistry
- Secondary focuses: Mathematics, Physics, and English

**EXTRACURRICULAR INVOLVMENT****Seed your Startup 2023 Semi-Finalist***Morrisette Institute for Entrepreneurship (London, ON)* ✎

11/2022 – 01/2023

- Semi-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

**2023 Ivey Business Plan Competition Semi-Finalist***Ivey Business School (London, ON)* ✎

11/2022 – 01/2023

- Semi-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

**London Track3 Adaptive Snow School Instructor***London Track3 Ski School – Boler Mountain (London, ON)* ✎

12/2019 – 03/2020

12/2021 – 03/2022

12/2022 – Present

- Snowboarding instructor for children and adults with physical, developmental, visual, and hearing challenges

**Community Representative***Biochemistry Graduate Students Association – Western University (London, ON)* ✎

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

**Science Rendezvous Organizer***Science Rendezvous – Western University (London, ON)* ✎

07/2022

- Organized booth for Biochemistry Department to promote science to children and parents
- Performed hands-on DNA extraction demos from fruit

**cGEM Competition Judge**

10/2021

*cGEM* ✎

- Judge for national biotechnology competition in Canada

**Community Representative**

10/2020 – 04/2021

*SynBio Canada* ✎

- Update SynBio Canada executives on synthetic biology research at UBC and BC province

**iGEM Graduate Advisor**

10/2020 – 12/2020

*UBC iGEM – University of British Columbia (Vancouver, BC)* ✎

- Aid in different aspects of UBC undergraduate iGEM research project

**Council Member (Botany Department Representative)**

09/2020 – 12/2020

*Graduate Student Society – University of British Columbia (Vancouver, BC)* ✎

- Speaker on behalf of department needs to student government body
- Elected as representative by Botany Graduate Student Association
- Member of the elections committee

**Writer / Researcher**

09/2018 – 04/2019

*Western University Technology Review – Western University (London, ON)* ✎

- Writing articles on novel technologies for a local audience
- Sustainability department

<b>Chito Ryu Karate Training</b> <i>Higashi Dojo (Toronto, ON) ♣</i> <ul style="list-style-type: none"> <li>▪ 1<sup>st</sup> Dan Black Belt in Chito Ryu Karate</li> <li>▪ Weekly senior and youth group training</li> <li>▪ Tournament competitions <ul style="list-style-type: none"> <li>♦ Kata: 4 gold, 3 bronze; Kumite: 3 gold, 1 silver, 3 bronze</li> </ul> </li> <li>▪ Various demonstrations at other dojos and events</li> </ul>	2004 – 2016
<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>Chair's Travel Award</b> <i>Issued by the Department of Biochemistry of the Schulich School of Medicine &amp; Dentistry</i> <ul style="list-style-type: none"> <li>▪ Issued to promote communication of research findings by supporting participation at international conferences.</li> <li>▪ \$500</li> </ul>	09/2022
<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

**International Conference on Algal Biomass, Biofuels and Bioproducts (AlgalBBB 2023)** 06/2023  
*Waikōloa Beach, Hawaii, USA*

- Selected to present oral presentation.
- Title: Towards synthetic diatoms: The Pt-syn 1.0 project.

**2023 Bioenergy Conference** 01/2023  
*Webinar*

- Speaker for 15 min presentation
- Title: Genetic engineering advances in diatoms

**SynDiatoms 2022 Workshop** 12/2022  
*Webinar*

- Speaker for 15 min presentation
- Title: Optimizing transformation methods for *Phaeodactylum tricornutum*

**Nanopore Community Meeting 2022** 12/2022  
*Metropolitan Pavilion (New York City, NY)*

- Attendee for the workshop: An introduction to machine learning for Oxford Nanopore data, entailed;
  - ♦ Building a basic basecaller using HMM's
  - ♦ Building a variant caller for using a convolutional neural network in PyTorch.

**Canada SynBio 2022** 05/2022  
*MaRS Discovery District (Toronto, ON)*

- Submitted abstract and selected for both oral (1/4 presenters) and poster presentations
- Title: Towards synthetic diatoms: The Pt-syn 1.0 project.
- Video: <https://www.linkedin.com/feed/update/urn:li:activity:6938749677995470848/> ↗

**Ontario Biology Day** 03/2020  
*McMaster University (Hamilton, ON)* **Cancelled due to COVID-19**

- Scheduled for 15 min presentation
- Title: Shaping the root: assessing a dose dependent role of the *Lotus japonicus* *HAR1* receptor kinase gene

## CERTIFICATIONS

**edX Verified Certificate for CS50's Introduction to Computer Science** 11/2022  
*Issued by HarvardX*

- Credential ID: [b2f0e720dcab45dabf14307458bffba8](https://www.linkedin.com/feed/update/urn:li:activity:6938749677995470848/) ↗

**CASI Level 2 Snowboard Instructor Certification** 03/2021  
*Issued by the Canadian Association of Snowboard Instructors (CASI-ACMS)*

**Smart Serve** 02/2018  
*Issued by Smart Serve Ontario*

- Credential ID: e180222444625RS

**CASI Level 1 Snowboard Instructor Certification** 12/2014  
*Issued by the Canadian Association of Snowboard Instructors (CASI-ACMS)*

## PROGRAMMING AND I.T. KNOWLEDGE

- **Python** – Intermediate
- **R and R studio** – Intermediate
- **bash/Unix** – Intermediate
- **Git/GitHub** – Intermediate
- **SQL/SQLite/MySQL** – Novice
- **JavaScript** – Intermediate
- **HTML** – Intermediate
- **CSS/Sass** – Intermediate
- **Django** – Novice
- **Node.js, Express, and MongoDB** – Novice
- **C** – Basic

## TECHNICAL SKILLS

### Computer Software Experience

- **Microsoft Office** (including **Excel**) – Proficient
- **Krona** – Proficient
- **NCBI BLAST** – Intermediate
- **SnapGene** – Intermediate
- **ML-DSP** – Novice
- **FigTree** – Novice
- **Benchling** – Proficient
- **PyMOL** – Novice
- **DNASTAR** – Novice
- **Adobe Photoshop** – Intermediate
- **Adobe Illustrator** – Intermediate
- **Sony Vegas Pro** – Intermediate
- **Audacity** – Intermediate

### Laboratory Experience

- DNA / RNA isolation
- DNA assembly / delivery
- Microbiology techniques
- Bisulfide Conversion
- Sanger Sequencing
- qRT-PCR
- CRISPR–Cas editing
- Nanopore Sequencing
- Bioinformatics for genomics

### Technique Familiarity

- Western Blotting
- Agroinfiltration
- Hairy root transformation
- GUS staining
- Minisatellite/Microsatellite analysis
- Fluorescence *in situ* hybridization
- Chaos Game Representation

## 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
- Weight training
- Snowboarding
- Web development
- Rock climbing
- Fitness enthusiast