

MARK PAMPUCH

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EDUCATION

Visiting Student Researcher

09/2023 – 12/2023 (Expected)

King Abdullah University of Science and Technology (Thuwal, Saudi Arabia)

- Sustainable & Synthetic Biotechnology Group
- Supervisor: Dr. Kyle J. Lauersen ↗

Master of Science

09/2021 – 12/2023 (Expected)

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09/2020-12/2020 (withdrawn from program)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

09/2016 – 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

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

03/2023

Morrisette Institute for Entrepreneurship (London, ON) ✎

- Semi-finalist amongst one other student “co-founder” in university business plan competition
- Business plan entailed developing roadside drug screening devices for law enforcement services

2023 Ivey Business Plan Competition Semi-Finalist

11/2022 – 01/2023

Ivey Business School (London, ON) ✎

- 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

12/2019 – 03/2020

London Track3 Ski School – Boler Mountain (London, ON) ✎

12/2021 – 03/2022

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

12/2022 – Present

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
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Writer / Researcher

09/2018 – 04/2019

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

- Writing articles on novel science and technologies for a local audience

Chito Ryu Karate Training <i>Higashi Dojo (Toronto, ON) ♣</i> <ul style="list-style-type: none"> 1st Dan Black Belt in Chito Ryu Karate Weekly senior and youth group training Tournament competitions <ul style="list-style-type: none"> Kata: 4 gold, 3 bronze; Kumite: 3 gold, 1 silver, 3 bronze Various demonstrations at other dojos and events 	2004 – 2016
Snowboarding Team <i>Marshall McLuhan Catholic Secondary School (Toronto, ON)</i> <ul style="list-style-type: none"> Participated in racing events at Mount St. Louis Moonstone (Coldwater, ON) 	2014 – 2016
CASI Level 1 Program <i>Canadian Association of Snowboard Instructors – Lakeridge Ski Resort (Uxbridge, ON) ♣</i> <ul style="list-style-type: none"> Obtained CASI Level 1 Snowboard Instructor Certification 	12/2015
Staff in Training <i>Seneca Summer Camps – Seneca College (Toronto, ON)</i> <ul style="list-style-type: none"> Mini-Multi's Sports Camp (ages 4 – 6) Engaging enthusiastically w/ children Planning and organizing weekly activities 	07/2015 – 08/2015
Model United Nations (CHAMUN) <i>Chaminade College School (Toronto, ON)</i> <ul style="list-style-type: none"> Researching, debating, and cooperative problem-solving w/ regards to contemporary political issues 	04/2015
Leader in Training Program <i>Seneca Summer Camps – Seneca College (Toronto, ON)</i> <ul style="list-style-type: none"> Focuses: management, decision making, and problem-solving skills 	07/2014

AWARDS

Chair's Travel Award <i>Issued by the Department of Biochemistry of the Schulich School of Medicine & Dentistry</i> <ul style="list-style-type: none"> Issued to promote communication of research findings by supporting participation at international conferences. \$500 	09/2022
Canada Graduate Scholarships – Master's Program <i>Issued by the Natural Sciences and Engineering Research Council of Canada (NSERC)</i> <ul style="list-style-type: none"> \$17,500 	09/2022
Ontario Graduate Scholarship <i>Issued by the Ontario Government</i> <ul style="list-style-type: none"> \$15,000 Awarded but declined due to conflict with NSERC award 	09/2022
Ontario Graduate Scholarship <i>Issued by the Ontario Government</i> <ul style="list-style-type: none"> \$15,000 	09/2021
British Columbia Graduate Scholarship <i>Issued by the Government of British Columbia</i> <ul style="list-style-type: none"> \$15,000 	09/2020
Deans Honor List <i>Issued by Western University</i>	2017 – 2020
Western Scholarship of Distinction <i>Issued by Western University</i> <ul style="list-style-type: none"> \$1000 	09/2016

PUBLICATIONS

- Walker, E.J.L., Pampuch, M., Chang, N., Cochrane, R.R., and Karas, B.J. (2023) Design and assembly of the 117-kb *Phaeodactylum tricornutum* chloroplast genome. Plant Physiology. Submitted, manuscript number: PP2023-RR-00842
- 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

SynDiatoms Fall 2023 Workshop <i>Webinar</i> <ul style="list-style-type: none"> ▪ Speaker for 15 min presentation ▪ Title: Fostering International Collaborations for Algal Biotechnology 	05/2023
International Conference on Algal Biomass, Biofuels and Bioproducts (AlgalBBB 2023) <i>Waikōloa Beach, Hawaii, USA</i> <ul style="list-style-type: none"> ▪ Selected to present oral presentation. ▪ Title: Towards Synthetic Diatoms: Advances in <i>Phaeodactylum tricornutum</i> Nuclear Genome Engineering 	06/2023
SynDiatoms Spring 2023 Workshop <i>Webinar</i> <ul style="list-style-type: none"> ▪ Speaker for 15 min presentation ▪ Title: Towards Synthetic Diatoms: Advances in <i>Phaeodactylum tricornutum</i> nuclear genome engineering 	05/2023
Graduate Research Spring Symposium 2023 <i>Western University / Schulich School of Medicine and Dentistry (London, ON)</i> <ul style="list-style-type: none"> ▪ Speaker for 15 min presentation ▪ Title: Towards Synthetic Diatoms: Advances in <i>Phaeodactylum tricornutum</i> nuclear genome engineering 	05/2023
2023 Bioenergy Conference <i>Webinar</i> <ul style="list-style-type: none"> ▪ Speaker for 15 min presentation ▪ Title: Genetic engineering advances in diatoms 	01/2023
SynDiatoms 2022 Workshop <i>Webinar</i> <ul style="list-style-type: none"> ▪ Speaker for 15 min presentation ▪ Title: Optimizing transformation methods for <i>Phaeodactylum tricornutum</i> 	12/2022
Nanopore Community Meeting 2022 <i>Metropolitan Pavilion (New York City, NY)</i> <ul style="list-style-type: none"> ▪ Attendee for the workshop: An introduction to machine learning for Oxford Nanopore data, entailed; <ul style="list-style-type: none"> ♦ Building a basic basecaller using HMM's ♦ Building a variant caller for using a convolutional neural network in PyTorch. 	12/2022
Canada SynBio 2022 <i>MaRS Discovery District (Toronto, ON)</i> <ul style="list-style-type: none"> ▪ 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/ ↗ 	05/2022
Graduate Research Winter Symposium 2022 <i>Western University / Schulich School of Medicine and Dentistry (London, ON)</i> <ul style="list-style-type: none"> ▪ Poster presentation ▪ Title: Towards Synthetic Diatoms 	01/2022

- 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: [b2f0e720dcab45dabf14307458bffa8](#) ↗

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 | ▪ JavaScript – Intermediate |
| ▪ R and R studio – Intermediate | ▪ HTML – Intermediate |
| ▪ bash/Unix – Intermediate | ▪ CSS/Sass – Intermediate |
| ▪ Git/GitHub – Intermediate | ▪ SQL – Novice |
| ▪ Snakemake – Intermediate | ▪ C – Basic |

TECHNICAL SKILLS

Computer Software Experience

- | | |
|--|---|
| ▪ VS Code – Proficient | ▪ PyMOL – Novice |
| ▪ Microsoft Office (including Excel) – Proficient | ▪ DNASTAR – Novice |
| ▪ Benchling – Proficient | ▪ Adobe Photoshop – Intermediate |
| ▪ Anaconda – Intermediate | ▪ Adobe Illustrator – Intermediate |
| ▪ Krona – Intermediate | ▪ Sony Vegas Pro – Intermediate |
| ▪ SnapGene – Intermediate | ▪ Audacity – Intermediate |
| ▪ ML-DSP – Novice | |
| ▪ FigTree – Novice | |

Laboratory Experience

- | | |
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| ▪ DNA / RNA isolation | ▪ PCR |
| ▪ DNA assembly / delivery | ▪ qRT-PCR |
| ▪ Microbiology techniques | ▪ Fluorescence Microscopy |
| ▪ Sanger Sequencing | ▪ Cre/lox Recombination |
| ▪ Nanopore Sequencing | ▪ HPLC |
| ▪ Bisulfide Conversion | ▪ Capillary Electrophoresis |
| ▪ CRISPR–Cas editing | ▪ Adaptive Lab Evolution |
| ▪ Bioinformatics for genomics | ▪ RNA-Seq Analysis |

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 | ▪ Web development |
| ▪ Weight training | ▪ Rock climbing |
| ▪ Snowboarding | ▪ Fitness enthusiast |