

EDUCATION

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- **Bowdoin College** Brunswick, ME  
*B.A. Mathematics & Minor in Classical Greek (Leave 2020-21)* August 2019 - Exp. May 2024
- **Columbia University in the City of New York** New York City, NY  
*Visiting Student, Dept. of Mathematics* August 2020 - June 2021
- **Mont' Kiara International School** Kuala Lumpur, Malaysia  
*High School Diploma & IB Diploma* August 2017 - May 2019

RESEARCH

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- **Dept. of Applied Mathematics – Harvard University** Cambridge, MA  
*Research Collaboration with A. Seigal* October 2022 - Present
  - Ongoing research on the characterization of the discriminant variety of polynomial systems.
- **Nonlinear Algebra – Max Planck Institute for Mathematics in the Sciences** Leipzig, Germany  
*Visiting Researcher (Mentor: P. Breiding)* May 2022 - August 2022
  - Proved several results relating to the intersection theory of plane conics.
  - Developed computational methods for investigating the real geometry of enumerative problems.
- **The Xena Project – Imperial College London** London, United Kingdom  
*Independent Contributor* June 2021 - August 2021
  - Formalized Chapter 1 of Hardy and Wright's *An Introduction to the Theory of Numbers* in the **Lean** Automated Theorem Prover.
- **Karanicolas Lab – Fox Chase Cancer Center & Temple Medical School** Philadelphia, PA  
*Researcher (Mentor: J. Karanicolas)* May 2020 - June 2021
  - Developed deep learning models to process large-scale biological data for the identification of lead compounds with a view to kinase inhibitors.
  - Assisted principal investigator in preparing grants for the National Institutes of Health and National Science Foundation.
  - Presented research at several academic conferences.

PUBLICATIONS

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- P. Breiding, J. Lindberg, **W. Ong**, L. Sommer. “Real Circles Tangent to 3 Conics” In submission at *Experimental Mathematics*, online ahead of print at [arXiv:2211.06876](https://arxiv.org/abs/2211.06876)
- G. Andrianov, **W. Ong**, I. Serebriiskii, and J. Karanicolas. “Efficient Hit-to-Lead Searching of Kinase Inhibitor Chemical Space via Computational Fragment Merging.” *J. Chemical Information and Modeling*, Vol. 61, No. 12. [doi.org/10.1021/acs.jcim.1c00630](https://doi.org/10.1021/acs.jcim.1c00630)
- **W. Ong**<sup>†</sup>, P. Kirubakaran<sup>†</sup>, J. Karanicolas. “How Current Neural Network Models for Kinase-Inhibitor Affinity Predictions Generalize Poorly.” *In Preparation*.

<sup>†</sup> Indicates equal contribution.

SELECTED PRESENTATIONS

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A full list of presentations is available at [wgabrielong.github.io/talks](https://wgabrielong.github.io/talks).

- **W. Ong**. “Real Circles Tangent to Three Conics.” Algebraic Geometry Northeastern Series, UMass Amherst, November 2022.
- **W. Ong**. “Group Equivariant Neural Networks in Computer Vision.” Presented to the Algebraic Vision Network at Czech Technical University – Prague, May 2022.
- **W. Ong**. “Sentences and Strings: An Introduction to Model Theory.” Presented to the Undergraduate Mathematics Society at Columbia University as part of the Summer Learning Seminar 2021.

## AWARDS AND HONORS

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- **Sarah and James Bowdoin Scholar (2022):** (Dean's List) For exceptional academic performance.
- **Smyth Mathematics Prize (2022):** For most exceptional performance in mathematics coursework.
- **$100\pi - \varepsilon$  Prize (2020):** For extraordinary inspiration and joy for the pursuit of mathematics.

## SELECTED PROFESSIONAL ACTIVITIES

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- **Minicourse on Convex Geometry** – Max Planck Institute for Mathematics in the Sciences, July 2021
- **Real Algebraic and Convex Geometry** – Technische Universität Braunschweig, July 2021
- **Macaulay2 Polymake Workshop** – Technische Universität Berlin, January 2022
- **Arizona Winter School in Arithmetic Geometry** – University of Arizona, March 2022
- **Summer Ringvorlesung III** – International Max Planck Research School (Leipzig), June 2022
- **Algebraic Geometry, Combinatorics, and Machine Learning** – Max Planck Institute for Mathematics in the Sciences, August 2022
- **Algebraic Geometry Northeastern Series (AGNES)** – University of Massachusetts – Amherst, November 2022
- **Joint Mathematics Meetings** – Hynes Convention Center (Boston), January 2023

## SERVICE TO THE PROFESSION

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- **Bowdoin Science Experience (Fall 2021 & 2022):** Organized an orientation trip introducing students historically underrepresented in the sciences to the Bowdoin science departments and other academic support services.
- **Mathematics Department Visiting Faculty Search (Summer 2020):** Assisted in small-group student interviews for the visiting assistant professor search in Summer 2020.
- **Mathematics Department Tenure-Track Faculty Search (Spring 2020):** Assisted in small-group student interviews for the tenure-track faculty search in Spring 2020.

**Memberships:** Mathematical Association of America; Institute of Electrical and Electronics Engineers; American Mathematical Society

## SKILLS

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- **Programming:** Python (TensorFlow, SKLearn, Pandas, NumPy); Julia; Wolfram Mathematica; Lean
- **Computational Skills:** Google Suite, Microsoft Office, L<sup>A</sup>T<sub>E</sub>X
- **Languages:** English (Native), Classical Greek (Scholarly), Spanish (Working), Mandarin (Spoken), Malay (Spoken)
- **Certificates and Training:** WMA Wilderness First Responder (exp. 2023), PADI Master SCUBA Diver