Curtis Heberle

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Education

Tufts University

- Ph.D., Mathematics (2022).

- Advisor: David Smyth.

- Thesis: *Tschirnhaus Transformations, Resolvent Degree, and the Method of Obliteration*

Harvey Mudd College

- B.S., Mathematics, *with distinction* (2012).

- Senior thesis: *A Combinatorial Approach to r-Fibonacci Numbers.*

Work Experience

- Instructor, Tufts University (Fall 2022-Present)

- Research Analyst/Programmer, Institute for Technology Assessment, Massachusetts General Hospital (2012-2016)

Mathematical Work

5. **Hyperbolicity from Contact Surgery** (joint with Boris Hasselblatt), in preparation.

4. **Optimizing Sylvester's Obliteration Algorithm for Finding Special Points on Intersections of Quadrics**, in preparation.

3. **Upper Bounds on Resolvent Degree via Sylvester's Obliteration Algorithm** (joint with Alex Sutherland), preprint.

2. **Removal of 5 Terms from a Degree 21 Polynomial**, preprint.

1. **Counting on r-Fibonacci Numbers** (joint with Arthur T. Benjamin), *Fibonacci Quarterly*, Vol. 52, Number 2, pp. 121-128, May 2014.

Other Publications

8. **Cost Effectiveness of a Novel Device for Improving Resuscitation of Apneic Newborns** (joint with Ayman Ali and four others), *BMC pediatrics* 20, no. 1 (2020): 1-9.

7. **Analysis of Factors Associated With Extended Recovery Time After Colonoscopy** (joint with Patrick C. Eschenfeldt and six others), *PLoS one* 13, no. 6 (2018): e0199246.

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[1]Updated November 1, 2022

6. [The Thyroid Cancer Policy Model: A Mathematical Simulation Model of Papillary Thyroid Carcinoma in the U.S. Population](joint with Carrie Lubitz and eight others), *PLoS one* 12, no. 5 (2017): e0177068.

5. [Cost-Effectiveness of Screening Patients with Gastroesophageal Reflux Disease for Barrett's Esophagus With a Minimally Invasive Cell Sampling Device](joint with 13 others), *Clinical Gastroenterology and Hepatology* 15, no. 9 (2017): 1397-1404..

4. [Radiofrequency Ablation of Barrett's Esophagus Reduces Esophageal Adenocarcinoma Incidence and Mortality in a Comparative Modeling Analysis](joint with Sonja Kroep and 17 others), *Clinical Gastroenterology and Hepatology* 15, no. 9 (2017): 1471-1474.

3. [Screening for Pancreatic Adenocarcinoma in BRCA2 Mutation Carriers: Results of a Disease Simulation Model](joint with Pari Pandharipande and six others), *EBioMedicine 2*, no. 12 (2015): 1980-1986.

2. [Targeted Screening of Individuals at High Risk for Pancreatic Cancer: Results of a Simulation Model](joint with Pari Pandharipande and six others), *Radiology* 275, no. 1 (2015): 177.

1. [Exploring the Recent Trend in Esophageal Adenocarcinoma Incidence and Mortality Using Comparative Simulation Modeling](joint with Chung Yin Kong and 14 others), *Cancer epidemiology, biomarkers & prevention* 23, no. 6 (2014): 997-1006.

Talks and Posters

3. *Tschirnhaus Transformations, Resolvent Degree, and Sylvester's Method of Obliteration.* Algebraic Geometry Seminar, Boston College, November 18, 2021.

2. *Roots of Polynomials, Tschirnhaus Transformations, and Hilbert's 13th Problem.* Graduate Student Seminar, Tufts University, October 2019.

1. *A Combinatorial Approach to r-Fibonacci Numbers.* Undergraduate Poster Session, Joint Mathematics Meeting, 2012.

Teaching and Mentoring

Tufts University

- Instructor, Abstract Algebra I (Spring 2023)

- Teaching Assistant, Linear Algebra (Spring 2021, Fall 2021, Spring 2023).

- Instructor, Bridge to Higher Math (Fall 2022)

- Instructor, Linear Algebra (Spring 2020, Summer 2020, Summer 2021, Summer 2022)

- Teaching Assistant, Calculus III (Spring 2022)

- Teaching Assistant, Graduate Algebra I (Fall 2021)

- Teaching Assistant, Abstract Algebra I (Fall 2016, Fall 2021).

- Teaching Assistant, Real Analysis I (Spring 2018, Fall 2020)

- Graduate Student Mentor, Directed Reading Program (Summer 2017, Fall 2019, Spring 2020)

- Teaching Assistant, Calculus II (Fall 2018, Fall 2019)

- Instructor, Calculus II (Summer 2019).

- Teaching Assistant, Real Analysis II (Spring 2019)

- Teaching Assistant, Number Theory (Fall 2017)

- Teaching Assistant, Abstract Algebra II (Spring 2017)

Johns Hopkins Center for Talented Youth

- Teaching Assistant, Mathematical Logic (Summer 2010)

- Teaching Assistant, Fundamentals of Computer Science (Summer 2011)