Caitlin Beecham

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Objectives

During COVID, I made a major life decision to move away from the technical aspect of my field and move into working the humanities aspect. I am interested in working in social media or marketing in a role that involves no actual coding or technical work, as per my recent major life decision. This decision was motivated in major part by the fact that I can no longer take my ADHD medicine due to recent stomach issues. In fact, that life event essentially forced this decision, which was difficult to accept, but has provided a path forward I am genuinely excited about pursing.

References

- Patricia Cahn, Professor at Smith College, who can verify social media, recruitment, marketing and event planning experience (specifically as part of the AWM) which is what I want to move into: 1(413)585-3769, https://www.smith.edu/academics/faculty/patricia-cahn
- Antonella Grassi, Professor at the University of Pennsylvania, who can verify social media, recruitment, marketing and event planning experience (specifically as part of the AWM) which is what I want to move into: 1(215)898-7997, https://www2.math.upenn.edu/ grassi/
- Sarah Simon, Law Student Stanford University, who can verify social media, recruitment, marketing and event planning experience, which is what I want to move into: https://www.linkedin.com/in/sarsimon
- Eric Vigoda, CS Professor Georgia Tech, who can verify employment and understanding of Theoretical CS in general: https://www.cc.gatech.edu/people/eric-vigoda
- Xingxing Yu, Math Professor Georgia Tech, who can verify employment, research and teamwork capabilites: 1(404)894-4757, https://math.gatech.edu/people/xingxing-yu.
- Craig Tovey, Math Professor Georgia Tech, who can verify employment and one-on-one research capabilities: 1(404)894-3034, https://www.isye.gatech.edu/users/craig-tovey

Education

University of Pennsylvania Philadelphia, PA

Bachelor of Arts in Mathematics *Aug. 2012 – May 2017*

- I took 7/13 math courses at the Master's level.
- I took 6/7 Master's-level math courses during my sophomore year.

Georgia Institute of Technology Atlanta, GA

Master of Science in Mathematics *Aug. 2018 – May 2020*

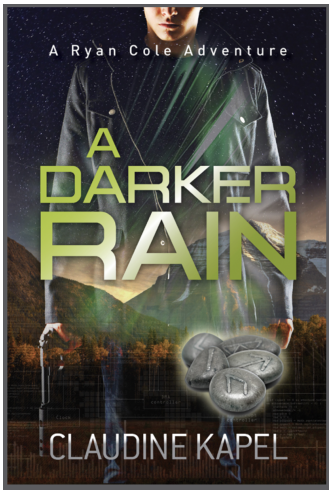
- I chose the school due to its #2 ranking in Discrete Mathematics according to U.S. News and World Report.
- I completed two years of study at the Ph.D. level.
- I conducted research with Professor Xingxing Yu and Professor Craig Tovey in graph theory.

Mainstream Name Recognition

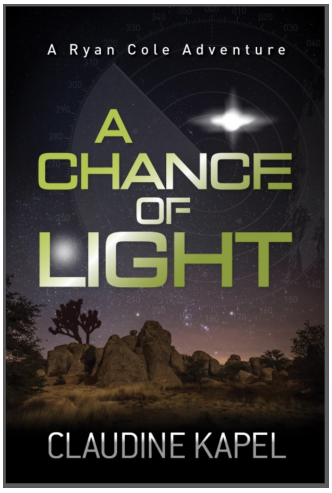
Principal Character in Two Popular Science Fiction Novels

"A Darker Rain" and "A Chance of Light" *2013,2016*

- Myself and my father, James Beecham, a former military doctor, are two of the principal characters in Claudine Kapel's science fiction thrillers "A Darker Rain" and "A Chance of Light", both popular among STEM geeks.
- Both books can be found purchased via Apple Books.



(a) Original



(b) Sequel

Research/Teaching Experience

Note for this section: The following info is no longer in my active working memory so don't quiz me on it. However, my work is available for viewing on GitHub and my references are available for contacting. I highly recommend contacting Eric Vigoda at Georgia Tech. You can also contact the references listed in each resume subheading. My technical Github link is https://github.com/caitlinbeecham but like I said, during my recent gap year (between my Master's at Georgia Tech and current Ph.D. program at UC Santa Cruz, which I would like to leave as soon as possible (contact Gina Hernan for employment verification)) I allowed myself to completely forget all my technical knowledge and focus on moving to something entirely new.

Research with Professor Craig Tovey Jointly: Spring 2019, Independently: Oct. 2020
Georgia Institute of Technology *Atlanta, GA*

- I met with Professor Tovey weekly to jointly brainstorm.
- Following graduation, I independently completed our research and plan to submit soon for publication.
- Reference: Craig Tovey, Georgia Tech, https://www.isye.gatech.edu/users/craig-tovey

Research with Professor Xingxing Yu Spring 2019, Summer 2019
Georgia Institute of Technology *Atlanta, GA*

- I met biweekly with Professor Yu and three other students to brainstorm ideas.
- I was responsible for consolidating these ideas into concrete research and formally writing up the results.
- I cannot detail the research as the research has been taken over by another student but the material is related to the following notes I took: https://github.com/caitlinbeecham/Graph-Theory/blob/master/AGT-Chromatic-Binding-Functions-and-Vizing-Pairs.pdf and https://github.com/caitlinbeecham/Graph-Theory/blob/master/AGT-Regularity-Lemma-and-Ramsey-Theory.pdf

- Reference: Xingxing Yu, Georgia Tech, https://math.gatech.edu/people/xingxing-yu

Linear Algebra Teaching Assistant Spring 2020
Georgia Institute of Technology *Atlanta, GA*

- I led recitations for 4 hours weekly.
- I tutored one hour weekly in the math tutoring center.
- I helped grade quizzes, midterms and final exams.

Linear Algebra Teaching Assistant Spring 2019
Georgia Institute of Technology *Atlanta, GA*

- I led recitations for 1 hour weekly.
- I tutored two hours weekly in the math tutoring center.
- I helped grade quizzes, midterms and final exams.

Online Teaching Assistant for Probabilistic Graphical Models: Representation Summer 2018
Stanford University via Coursera *Remote*

* I was invited to be a TA following my exemplary performance in the graduate-level course taught by Stanford researcher Daphne Koller.
* I answered students' questions on the online forum and explained concepts as needed.

Remote portion of the Grace Hopper Web Development Boot Camp Spring 2018
Fullstack Academy in New York City *Remote*

* I learned to use Javascript by watching the weekly required course videos and by completing the 7 required assignments and timed online coding tests.
* I decided not to complete the in-person portion of the boot camp upon learning I had been accepted to the Ph.D. Program in Machine Learning at the Georgia Institute of Technology.

Online Coursework through Stanford, UCSD, and Duke University Summer 2017 – Spring 2018
Completed the following courses: *Remote*

* Graduate-level Probabilistic Graphical Models: Representation (94.5% with honors) taught by Daphne Koller of Stanford
* Graduate-level Probabilistic Graphical Models: Inference taught by Daphne Koller of Stanford
* Machine Learning (96.9%) taught by Andrew Ng of Stanford
* Neural Networks and Deep Learning (98.6%) taught by Andrew Ng of Stanford
* Object-Oriented Programming in Java (92.8%) taught by a team of faculty at UCSD
* Introduction to Probability and Data (91.1%) taught by a team of faculty at Duke University
* Inferential Statistics (92.4%) taught by a team of faculty at Duke University
* Linear Regression and Modeling (86%) taught by a team of faculty at Duke University

Outreach Experience

Founder/President of the Penn Chapter of the Association for Women in Math 2014
University of Pennsylvania *Philadelphia*

· I recruited a faculty advisor Dr. Antonella Grassi and performed all logistical duties necessary to open a new registered chapter of the AWM.
· I then recruited initial members and led a public forum to determine what the goals and regular activities of the chapter should be.
· I then proceeded to coordinate weekly study groups, group lunches, and guest lectures, one from a lecturer, Adriana Salerno, who was herself a web-famous math blogger on the website PhD plus Epsilon.
· I also manned tables at extracurricular fairs that occurred each semester to recruit undergraduates to various clubs and student groups.
· Current Website: *https://upenn-awm.weebly.com/links.html*
· Facebook: *https://www.facebook.com/PennAWM*
· News Article:
https://penntoday.upenn.edu/features/math-group-encourages-more-women-to-remain-in-stem-fields

Chair of the Penn Undergraduate Math Society 2014
University of Pennsylvania *Philadelphia*

· I coordinated talks given by guest lecturers from outside universities (like Williams College, University of Georgia, and Bates College) as well as by graduate students on the topics of elliptic curves, quadratic forms, quotient orbifolds, and minimal surfaces.
· I additionally performed all other duties required of the chair such as speaking to students at the day-long Student Majors Fair for incoming freshman exploring prospective majors and coordinating the traditional Penn Math Mixer and faculty dinners of which there were two.
· Website in use during my tenure: *https://www2.math.upenn.edu/ugrad/mathclub/index.html*
· Note: I have since participated in remote training for Grace Hopper Web Development Boot Camp and have greatly increased my eye for graphic design and content placement. Aesthetics of future website would be greatly improved.

Co-Leader for the Penn Emerging Scholars Program Fall 2013
University of Pennsylvania *Philadelphia*

· I co-led a semester-long series of informal weekly workshops designed to expose freshmen in the computer science major to exciting new areas of computer science that use mathematics in interesting ways such as graphical networks and cryptography.
· I was invited to present it a second time in Fall 2014 but declined due to heavy courseload.

Portfolio

Instagram Remote
Coding & Tech *May 2017 - August 2018*

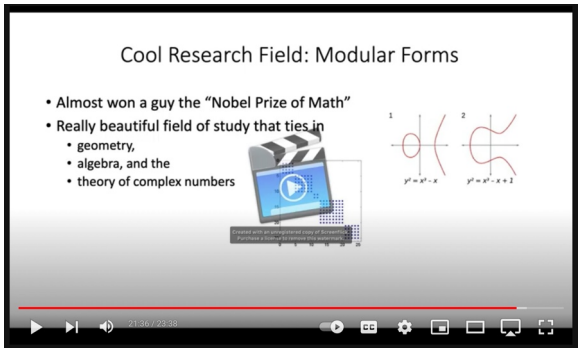
- https://www.instagram.com/mathdiary/
- -My ability to get 103 followers despite the relatively dry subject matter indicates an adeptness with social media and abundance of useful contact.
- -My ability to encorporate pop-culture references into seemingly dry mathematical content indicates a talent for fomenting interest in academic topics among the general public.

Quora Remote
Student Lifestyle Guru & Course Advisor *May 2017 - December 2021*

- https://www.quora.com/profile/Caitlin-Beecham

YouTube Information Presentation Remote
Making Encryption Accessible and Fomenting High School Interest in the Tech Industry *June 2020*

- https://www.youtube.com/watch?v=vhNM9UfmgAA



YouTube Informal Introduction Remote
Introduction for an All-Female Web Development Bootcamp *April 2018*

- https://www.youtube.com/watch?v=bwEvHEZExuQ

YouTube One-on-One Student Interaction Remote
Discussion with an Adult Learner Returning to Grad School Part Time *October 2018*

- https://www.youtube.com/watch?v=m7oNZ1-eOhw

Instagram Remote
Project Management and Outreach to Academic Researchers *May 2020 - August 2021*

- https://www.instagram.com/mathdiarysecondgapyear/

Technical Pure Math/Theoretical Computer Science GitHub 2018-2021
Works as a Master's Student at #2 School for Discrete Math *Atlanta*

- https://github.com/caitlinbeecham

Miscellaneous Networking Contacts

Member and Eventual Board Member of UPenn Polybian Society 2014-2017
University of Pennsylvania *Philadelphia*

- I participated in weekly non-partisan policital debates on topics such as Media Representations of Minority Groups and the Morality of Abortion.
- I successfully recruited new members by sending countless emails and scheduling individual in-person meetings, each of which took the form of a 30 minute to hour-long conversation of no particular structure.
- Reference: Sarah Simon, law student at Stanford University, https://www.linkedin.com/in/sarsimon

Member of UPenn Political Union 2018-2021
University of Pennsylvania *Philadelphia*

- I attended weekly strategy for my political subgroup, the Whigs, though did not participate particularly actively.
- I attended monthly sessions of the Union, which take the form of a meeting very closely resembling a voting session in Congress. (This club is designed to allow students to test out these careers as possible personality fits).
- Reference: Sarah Simon, law student at Stanford University, https://www.linkedin.com/in/sarsimon

Miscellaneous Skills (No longer in active working memory but available for viewing on GitHub)

Algebraic Number Theory: Understanding of classical material such as rings of integers, class groups, and Dedekind domains [See Github]
Representation Theory: Exercises from Serre's "Linear Representations of Finite Groups" and exercises from MIT OCW's course 18.712
Modular Forms: Strategic Reading of Schur and Diamond's "A First Course in Modular Forms" and the compiled works in "Modular Forms and Fermat's Last Theorem" including chapters written by Dr. Barry Mazur, Dr. Kenneth Ribet, Dr. Brian Conrad, Dr. Joseph Silverman, Dr. Alice Silverberg
Algebraic Topology: Standard material in Hatcher

Awards and Honors

- National Merit Finalist (national)
- Society of Women Engineers Award for Three Years of Excellence in Math and Science (national)
- Moody's Mega Math Challenge Honorable Mention Team Prize (national)
- UPenn Dean's List (university)
- Class of 1880 Exam Honorable Mention (university)