

Oberlin College

Mathematics Department

Spring 2019 Newsletter

Honoring Sam Goldberg

The Mathematics Department is delighted to announce the recent creation of an endowed fund honoring emeritus faculty member Samuel Goldberg, who taught at Oberlin College from 1953 to 1985.

Thanks to the generosity of a handful of alumni who wanted to recognize the enormous impact Sam had on so many lives, the Samuel Goldberg Department of Mathematics Support Fund will provide ongoing support in perpetuity to Oberlin students majoring in math.

We invite additional contributions to this Fund. Sam will be notified of all gifts made in his honor. If you would like add your support, go to www.oberlin.edu/donate/ to make a gift. Please include a designation for the “Goldberg Fund” in the Donation Information section so your gift can be properly credited. You may also send a check payable to Oberlin College to 50 West Lorain Street, Oberlin, OH 44074. Note “Goldberg Fund” in the memo section of your check. Thank you!

Commencement Reception

If you will be in Oberlin for Commencement/Reunion Weekend, please join us for the Mathematics Department’s Open House. The location: the Math Library (King 203). The time and date: from 2:00 to 4:00 pm on Sunday May 26, 2019. The refreshments: both institutional and home-baked cookies.

Faculty Updates

Steve Balady is a new Visiting Assistant Professor who has spent the past year trying to figure out what it means to be an Obie. He’s taught Calculus and Linear Algebra, published an article in number theory extending his dissertation work, and given talks at the Joint Mathematics Meetings and at Kenyon College. Recently he’s also begun joint work with CS professor (and Oberlin alum) Cynthia Taylor on student identity formation in mathematics and computer science. He’s incredibly excited that he’ll be continuing at Oberlin for a second year, and is only very slightly more excited that he and his husband Logan will be welcoming a son in June.

Bob Bosch ’85 gave talks on his nearly two-decade-long “Opt Art” project at Clemson University, Kenyon College, Northern Kentucky University, and the Joint Mathematics Meetings in Baltimore (presenting the highlights from a recent paper that he coauthored with double-degree mathematics majors Abagael Cheng ’20 and Ari Smith ’19. On April 5, 2019 his mathematical artwork was featured on the Chinese TV show “Super Brain.” And on November 12, 2019 his book *Opt Art: From Mathematical Optimization to Visual Design* will be published by Princeton University Press. If you are a fan of Bob’s mathematical artwork, you can click [here](#) for much more information about the book (the cover, a synopsis, and blurbs).

Jack Calcut is finishing a project with his past honors student, Patrick Haggerty ’13, and Craig Guilbault. This project continues work from Patrick’s honors thesis. Jack published a joint paper with a long term colleague and is on the precipice of his first year as department chair.

Susan Colley returned from her sabbatical and has enjoyed being back in the classroom this year. Her editorial work for *The American Mathematical Monthly* continues to absorb most of her free time. During the year, she has spoken at sectional meetings of The Mathematical Association of America; this June, she is looking forward to participating in a research workshop in Leuven, Belgium.

Colin Dawson has been on leave for the 2018-19 academic year, during which he has forged new collaborations, both within statistics outside Oberlin and in other disciplines within the college. He spent summer 2018 as a visiting scholar in the statistics department at the University of Washington, continuing his research on Bayesian machine learning models. Back at Oberlin he has been modeling linguistics data as part of a paper he is writing with Oberlin anthropology professor Jason Haugen. He also helped a student develop an individual major in data science (which he hopes to see more students pursue in the future) and just finished leading a private reading on recommender systems, an area of machine learning he previously did not know much about. He is looking forward to returning to teaching in the fall!

Benjamin Linowitz gave talks on his work about arithmetic locally symmetric spaces at the Conference on the Arithmetic Theory of Quadratic Forms (Seoul National University, South Korea), The 33rd Automorphic Forms Workshop (Duquesne University, Pittsburgh) and at the workshop Reflection Groups in Negative Curvature (Oberwolfach, Germany). He additionally co-taught a Spanish language course on the geometry of arithmetic groups with Emilio Lauret and Roberto Miatello. Their lecture notes will be published by *Publicações Matemáticas do IMPA*. He additionally published the article “Brauer equivalent number fields and the geometry of quaternionic Shimura varieties” in the *Quarterly Journal of Mathematics*. The paper is a blend of geometry and algebraic number theory and constructs incommensurable arithmetic locally symmetric spaces containing exactly the same set of proper immersed totally geodesic surfaces.

Benjamin Linowitz mentored an honors student – Jack Ladd – who will be attending graduate school at Worcester Polytechnic Institute in the fall. Jack’s thesis concerned the problem of when there exist integers x, y such that a prime p can be expressed as $p = x^2 + ny^2$.

Finally, Benjamin was appointed to the editorial board of MAA Reviews, the Mathematical Association of America’s online book review service.

After one year of junior leave, parts of which he spent in LA, **Chris Marx** was excited to be back with four seasons and plenty of opportunities to accessorize with winter clothes. In addition, he continued his research collaborations started during his sabbatical year, which resulted in two published articles in peer reviewed journals (*International Mathematics Research Notices* and *Anales Henri Poincaré*) and one submitted manuscript.

This June, Chris is looking forward to hosting a three-day, NSF funded research conference at Oberlin, the fourth Great Lakes Mathematical Physics meeting. One of the main objectives of the conference is to highlight the work of young researchers working at the intersection of analysis and mathematical physics and to offer opportunities for their professional development. Chris is excited that among the participants there will also be several current Oberlin students who are majoring in math and physics.

Lola Thompson has had a busy year. Her paper “Counting and effective rigidity in algebra and geometry” (co-authored with B. Linowitz, D. B. McReynolds, and P. Pollack) was published in *Inventiones Mathematicae*. She gave invited lectures in the US, Canada, Bolivia, Peru, Germany, the UK, and the Netherlands (the talks in Bolivia and Peru were both delivered in Spanish!). She also gave an invited lecture series at the Korean Institute for Advanced Study in Seoul. Lola

thoroughly enjoyed mentoring her first honors student, Ivan Aidun, and she looks forward to mentoring many more. This year she piloted a new first-year seminar, *Form and Formula*, a writing-intensive course on the interplay between mathematics and the arts. Lola is currently serving as the Co-Program Director of Oberlin’s \$1 million Inclusive Excellence Grant through the Howard Hughes Medical Institute. In that role, she is working on a number of initiatives to build a more-inclusive environment for underrepresented students in STEM courses.

Lola is very happy to report that she was recently awarded tenure! She will spend the 2019-2020 academic year on a research fellowship at the Max Planck Institute for Mathematics in Bonn, Germany. She is looking forward to starting new research projects and (hopefully) learning some German.

Jim Walsh is spending “senior week” at the SIAM Conference on Applications of Dynamical Systems in the mountains outside of Salt Lake City, where he is delivering an invited presentation on his ongoing work on the mathematical modeling of climate. He remains interested in models arising in the area of paleoclimate, with glacial cycles and possible snowball Earth glaciations of particular interest. One paper focusing on a mathematical model of a plausible alternative to snowball Earth episodes in our planet’s past appeared last summer in the *Journal of Physics Communications*. Responding to an invitation to provide an article for a special issue of the *CODEE Journal* that linked differential equations to social justice and environmental concerns, Jim published a paper describing a model with connections to the potential effects climate change might have on ocean circulation (a potential change dramatically portrayed in the film *The Day After Tomorrow*!).

Elizabeth Wilmer has spent her 2018-19 sabbatical year working on problems in extremal combinatorics at the University of Oxford, where she has been a Visiting Research Fellow at Merton College.

Jeff Witmer gave an invited talk at a conference in Kyoto last summer; then he climbed Mt. Fuji. When back in North America he gave a talk at the Joint Statistics Meetings in Vancouver. In September he started to receive submissions to the *Journal of Statistics Education*, as incoming editor: His three-year term as Editor in Chief of that journal officially began in January of this year. He was co-author of the second edition of *STAT2: Modeling with Regression and ANOVA*, which appeared this winter.

Kevin Woods developed a new upper-level course on Cryptography, which he taught for the first time in Spring 2019. It was a fun mix of mathematics and

computer science. He is looking forward to his sabbatical in the upcoming academic year. He will start with a month-long hike in Italy, which he expects to help recharge his mind so that he will have the energy to investigate some new research directions.

Robert Young

“There are some men in this world who know nothing and study in order to learn something. Their aims are laudable, but a waste of time, for in the last analysis their efforts will only reveal how unknown (and unknowable) the truth really is. There are others who know nothing and don’t bother to study because they think they know everything. For the vast majority of these nothing can be done save to envy them their idleness and self-satisfaction, and to lament the fate of their wits. And there are others still who, knowing nothing, openly admit the fact because they think they have thereby grasped something that is true; but the fact nevertheless remains that they know nothing, and their confession of ignorance should be accepted and punishment meted out simultaneously on account of their hypocrisy. But there is yet another category (the worst kind in which I place myself) consisting of those who don’t know anything, don’t want to, and don’t believe it is possible in any case. They claim that everybody is ignorant, everybody claims the same about them, and neither side is mistaken.”

Francisco de Quevedo, *The World from the Inside* (1612)

Student News

The Class of 2019: Congratulations to our majors!

Honors Students. In 2018-19, four Oberlin students wrote Honors theses in mathematics:

- **Ivan Aidun** was supervised by Lola Thompson. Ivan’s thesis was titled “A statistical investigation of a divisor-sum function.”
- **Jack Ladd** was supervised by Benjamin Linowitz. Jack’s thesis was titled “Classifying primes of the form $x^2 + ny^2$.”
- **Iris Li** worked with Bob Bosch. Iris’ thesis was titled “The application of Markowitz’s portfolio theorem to a virtual stock market.”
- **Oliver Meldrum** worked with Kevin Woods. Oliver’s thesis was titled “Dedekind cuts: properties and applications to number theory and lattice point enumeration.”

Student Awards. Student awards (the Rebecca C. Orr Prize and the Eddie Wong prize) will be given out at the Mathematics Department’s Open House during Commencement/Reunion Weekend. The John D. Baum

Prize (given to the student who scored highest on the Putnam Exam) was awarded at the Mathematics Department’s end-of-year picnic. For the second year in a row, Liam Axon ’21 was at the top.

Department Activities

The Math Department hosted four high-profile speakers who delivered our annual named lectures:

Ralf Spatzier (University of Michigan) was this year’s Distinguished Visitor. He gave a series of guest lectures in Benjamin Linowitz’s Differential Geometry class and gave the Fuzzy Vance public lecture on “Symmetry in geometry and dynamics.”

Rachel Levy ’89 (The Mathematical Association of America) gave the Tamura-Lilly Lecture on “Mathematical modeling from kindergarten to industry.”

Esther Widiasih (University of Hawaii, West Oahu) gave the Lenora Young Lecture on “Math and climate modeling: in search of clarity.”

Shahriar Shahriari ’77 (Pomona College) was this year’s Honors Examiner. In addition to probing the depths of our honors students’ mathematical knowledge, he gave a talk entitled “Why have these math problems not been solved?”

And as is our custom, we celebrated π day at 3:14 pm on March 14.



Alumni Updates

Harold F. Mattson, Jr., ’51 In March I spoke at SIDIM, a math conference in Puerto Rico held in memory of Francis Castro, on my work with him.

I eagerly await the next few Monthlies to see if they publish my solution to Problem 11992, but it's a 3-page generalization with full explanations, so I'll settle for also-ran. I am trying to finish up my work with a colleague on group representations; we hope to submit it to a journal in a few weeks.

George Andrews, '54 We are comfortably retired and living at Kendal at Oberlin. It's great to be living here since we can easily stay in touch with the Department and attend lectures, recitals, sporting events, etc. in a very supportive environment. Five of our eight grandchildren have graduated from OC, so we haven't had to go very far for their commencement events.

Danny Kleinman, '57 I'm looking for a proof of a theorem. The numbers of ways that c checkers can be distributed among p pockets = $(c + p - 1)!/c!(p - 1)!$. Can any reader supply one?

Denny Gulick, '58 I continue to teach at the University of Maryland, and to schedule the 100 colleagues in our department (along with a colleague).

O. Robert Brown, Jr. (Bob), '59 Happily retired since 2008 after a long career in math education and community college administration. Been living at the same address over 50 years; was employed at Montgomery College (Montgomery County, Maryland) for 37 years. Still celebrate the start Oberlin gave me.

Craig Hane, '60 Reform the High School Math Education Curriculum; Visit www.craighane.com to reach our websites. Our main site is www.TriadMathInc.com and www.LearnPlayConnect.com is probably the best to visit. Use LEARN as the Code if you join. It is aimed at parents with children at home.

Carl G. Thor, '62 I have "retired" several times from Corporate America, Corporate Consulting in Productivity and Quality improvement, and Book Writing. My wife and I now have an Art Gallery and I paint a little to fill the walls. The geometry of my art reflects a little of my college training, but otherwise I am a non-quant now.

George Thomas Mitchell, '63 Active now in leading senior courses in areas of art as well as sciences. Right now prepping for a course on murals and thinking forward on climate change topics.

J. Harvey Baker, '66 I continue my custom wood-working business (Dunmire Hollow Woodshop), coaching high school girls soccer, gardening, bicycling, and living in the woods.

Thomas Bradford (Tom) Gregory, '67 Michael Kuznetsov, of Nizhny Novgorod State University, and I continue to work on "On graded Lie algebras of characteristic three with classical reductive null component." We've been working on it for the better part of two decades.

Steven R. Woodbury, '68 I retired a few years ago from the Department of Energy, after a career in environmental planning and environmental protection. Not a mathematical career, but one where logical and quantitative thinking is important.

My wife Ann and I have recently moved to Collington, a Kendal retirement community in Mitchellville, MD, and we're loving it. We're enjoying lots of singing, including: traditional ballads, madrigals, sea chanteys, Collington Singers, Annapolis Chorale. I'm currently researching songs of the Women's Suffrage Movement, with the intention of getting some of them sung again next year during the Centennial.

Henry Martin, '72 Have been a professor of music at Rutgers University-Newark since 1998 – before that I taught music theory & history at the New School in New York City. I'm active as a composer and scholar.

Betsy Kip Uzzell, '72 I retired from my career as an actuary in 2015. Professor George Andrews started me in the right direction way back in 1970. I still live in Evanston, IL with my husband James. We have 2 adult sons and 3 grandchildren. For the past 19 years, I have been a volunteer with the Boy Scouts. I started in Scouting to support my son David, who is Deaf. My work has grown beyond the troop level to the district and council. I promote Disabilities Awareness at all levels of Scouting. Last year I received the Silver Beaver, which is a council-wide award for extraordinary influence on the Scouts. I'm also active in the Lions Club and have recently joined the Board of Directors at Center for Independent Futures, which supports adults with disabilities.

Eric Valinsky, '73 Eric Valinsky's online consulting company, Inlineos LLC, (<https://inlineos.com>) has made inroads in the non-profit landscape locally in Santa Barbara area and beyond. Non-profit clients include Foodbank of Santa Barbara County, Santa Barbara County Volunteer Organizations Active in Disasters, Mission Blue, The Teachers' Fund of Santa Barbara, American Dance and Music, Inc., DramaDogs, and The Santa Barbara Music Club. (Disclaimer: Eric is the Secretary of AD&M and its music director, resident composer for DramaDogs, and the President of SBMC).

Philip Heidelberger, '74 Now retired from IBM Research

Robert Kelley, '74 I'm retired from AT&T for 4 1/2 years now. Three unpaid jobs now: volunteer math tutoring at local community college, spending 1 day a week with grand-kids, and running a contemporary folk series at our local UU church.

Eric Rosenberg, '75 I am writing a textbook on fractal dimensions of geometric objects and networks. It is going to the publisher at the end of 2019. I would be happy to send the draft manuscript (the PDF file is about 400 pages) to anyone who has the time to read all or part of it and provide comments to me (typos, suggestions for rewording things, suggestions for additional exercises, etc.). The manuscript draft will be ready to send out for review in June, 2019. If you are interested, please write to me at eric.rosenberg.phd@gmail.com

Gary Moore, '78 Retired from Verizon on March 22, 2019.

Thomas Dietterich, '79 I'm semi-retired from Oregon State University where I continue to do research on artificial intelligence with a focus on robustness and uncertainty management. I'm also working on AI policy, especially for high-risk applications of machine learning and autonomous systems. Highlights of the past year include a month-long Fulbright Expert visit to Tsinghua University in Beijing to discuss AI safety and robustness; helping lead the Computing Community Consortium effort to write a 20-year roadmap for US AI Research; and teaching in the Data Science Africa summer school in Nyeri, Kenya. On the math/stat technical level, I have students working on anomaly detection and reasoning models for automated diagnosis of broken weather sensors as part of the TAHMO project, which is creating and operating a network of 20,000 automated weather stations throughout all of sub-Saharan Africa. This involves stopping rules for statistical inference, non-parametric density estimation, and many other fun math/stat puzzles.

Alan Frank, '79 I am taking an "early retirement" buyout from the software job I've had for a third of a century and looking forward to the next great adventure.

Currently looking at this problem (and eventually, generalizations): for a given integer k , what is the smallest set which has k subsets of 3 elements each such that no two subsets have more than one element in common. The answer is not in the OEIS.

Chris Leary, '79 After a fascinating year working as a AAAS Science and Technology Policy Fellow for the US Agency for International Development in Washington, I have been back in the Department of Mathematics at SUNY Geneseo. I'm working on getting an Inquiry Based Learning script for an upper division undergraduate Set

Theory course ready for dissemination, and I am looking forward to a few weeks in Greece and Italy with my family this summer.

Esther (Marx) Massimini, '79 I recently marked 31 years at Honeywell Aerospace, and after 9 years in Flight Management Systems, moved to a Product Support group to manage our global Test Resources. I'll have an article "A Honeywell Engineer in Queen Analytica's Court" published later this year in the engineering journal *The Exponent*, discussing how "regular" non-data-science engineers can use readily available analytics tools to make sense of data. I've been researching software "fingerprinting" – trying to mitigate the unintended consequences of change. 15 minutes of flight simulation where data for over 40K parameters is gathered in 12 ms intervals means a lot of data.

Outside of work, my husband (a cyber security analyst) and I travel, mainly to our favorite operas, baseball games and science fiction conventions. We're based in Phoenix because my husband doesn't do earthquakes, tornadoes, or snow. Our kids are fully adulted—daughter is a Public Defender in Sacramento, who proclaims the only math she needs is to calculate her client's sentence. Our son is a CPA/MBA working in commercial real estate trusts in Phoenix. We also have 2 elderly cats. I enjoy mentoring future women and minority engineers, and serve on the Career program committee of the Grace Hopper Celebration of Women in Computing (after several years on the Software Engineering committee.)

Steven Finch, '82 To make a living, I am Research Computing Specialist at the MIT Sloan School of Management. But, on the renegade-scholarly side, I finished the second volume of my encyclopedia on mathematical constants (published in January by Cambridge University Press). Click [here](#) for more information.

Mary Ellen Spencer Goree, '82 My career continues to be 100% playing and teaching the violin but I am proud to say that my older son is teaching math in an Oklahoma City public high school, and my younger son will begin employment as a computational engineer in June after graduating from the University of Texas in May.

Shawn Prater-Lee, '89 After having worked for 14 years as an administrator at Vassar College's nursery School I am now teaching at our local Career and Technical Institute. I am teaching high school juniors and seniors how to teach preschool.

Lisl '89 is entering her 26th year as swim coach at Vassar.

Our daughter Christiana will graduate from Vassar this May and will attend Boston University Law School in

the fall. Our daughter Gillian is doing a semester away internship in New York City at City University's School of Labor Studies. She will return to Case Western in the fall to finish her undergraduate degree.

Rachel Levy, '89 I have joined the Mathematical Association of America as its Deputy Executive Director. This means my family moved to Washington, DC. We have been enjoying the wintry mix - really! If you are in the area, I'd love to catch up with some Oberlin folks.

This fall I was able to return to the Oberlin Math Dept to give a talk about mathematical modeling and to meet with students about careers. It was an honor and terrific fun. You can search online for free books from SIAM and COMAP on math modeling, including the GAIMME report and few others. If you are interested in mathy careers, the BIG Jobs Guide is now available. Hope to see folks this spring at the reunion.

Dan Frankowski, '91 I left Pinterest after six years there as a data scientist. I'm investigating other ways of finding interesting things to do. I'm currently working on contracts with two very early-stage startups founded by people I know, because that might be fun.

Robin Jones, '91 I'm halfway through a PhD in Math Education, but still have no idea what I want to do when I grow up. Suggestions are welcome.

Greg King, '92 I have spent the last 26 years teaching math, computer science and engineering. First for the Cincinnati City Schools and for the last 18 years, the Dublin City Schools. In that time I have several times been responsible for developing the curriculum for new math classes. Most recently Mathematical Modeling and Data Analysis. Over and over, as I teach students going on to engineering school, I have reflected on and am grateful for how well Oberlin prepared me for my career.

Cara Hart, '92 I enjoyed coming out to Oberlin last year for my reunion (Class of '93), and catching up with faculty, alumni, and current students!

I have been working for the Boys & Girls Clubs of Metro Denver for 16 years. As the IT Director, I manage a small team keeping all of the computers, servers, firewalls, and networks running, so that our staff and our members can do all the things they need to do (and be kept safe from all the stuff they *don't* need to do!)

Robert Levy, '94 is a Civil Servant-Research Physical Scientist, working at NASA's Goddard Space Flight Center (GSFC) in Maryland. His primary job is to use satellite observations to retrieve properties of atmospheric particles (known as aerosols), and then relate

these datasets to characterizing global climate and air quality. In this past year, he became a project scientist for the GOES-R project, hoping to advocate for researchers looking to do new and interesting "science" with the operational weather satellite data.

At home he is trying to adapt to having a high school student (and also a middle schooler) without feeling too old and uncool. He is definitely failing both tasks. Occasionally, he finds time to play pickup ultimate with other old folks and sample some of the new breweries opening up around town.

Kimberly Anne (Ekey) Roth, '96 is a Professor of Mathematics at Juniata College. She was awarded the Robert V. Hogg Award for Excellence in Teaching Introductory Statistics from the Special Interest Group of the Mathematical Association of America in Statistics Education in January 2019.

Joshua Hartshorne, '02 In my third year as faculty at Boston College - technically in the psych department, though most of my students seem to come from Math or Computer Science. My most enthusiastic student is now 14 months old and has not yet chosen a major.

Behrad Mahdi, '04 Using my knot theory and matrix algebra skills to solve problems in the Federal government. The answers aren't elegant, but neither is the math.

Daniel Beder, '05 After teaching in the DC suburbs for 4 years, I moved back to the Chicago area to teach high school orchestra (and occasionally help my orchestra students with math) in the summer of 2017. My wife and I had a baby in October 2018.

Spencer Backman, '07 In the fall of 2019 I will begin a tenure-track position in the Department of Mathematics and Statistics at the University of Vermont.

David Carlson, '08 Got married July 14, 2018 in sunny Napa, CA. Still in NYC, working in Finance.

Noah Forman, '08 I have accepted a tenure-track professorship in mathematics at McMaster University, in Hamilton, Ontario, Canada.

Nick Winter, '08 The Skritter app I cofounded after graduating has grown to become the #1 app for learning to write Chinese characters. It does Japanese, too. Oberlin students get free Skritter with their oberlin.edu email. Meanwhile, my current startup, CodeCombat, has grown to 25 employees—we make a programming game for learning to code. Turns out learning programming is way easier than learning math, so give it a try at

codecombat.com when those integrals are melting your brain! If you want to work at either of these companies, find me at nickwinter.net.

Nicholas Lowery, '09 I've refrained from sharing news here until now because I've been engaged in decidedly non-mathematical pursuits since leaving Oberlin, but perhaps I can offer a little amusement. My circus career has been slowly gathering steam over the last few years and my fiancée and I are currently on a US tour with the Zoppe Circus, performing our signature duo act on the Chinese pole and also flying through the air from the Russian swing. We plan to get married in September.

Sneha Narayan, '10 I started a tenure-track faculty position in the CS department at Carleton College.

Madhav Kaushish, '11 I'm a graduate student in The Department of Mathematics at The University of Arizona working on Mathematics Education. I'm aiming at developing in students (middle school to undergraduate) the capabilities required to construct Mathematical Theories. I'm currently working on what I'm calling Assumption Digging, which is getting student to do something similar to what Hilbert did with Euclidean Geometry.

Along with a group of people, I also started an education non-profit called ThinQ (www.schoolofthinq.com). The goal of the organization is education for intellectual well-being. This means developing in students the capacity to construct and evaluate knowledge across disciplines. We are currently running a few pilot courses in schools in Pune, India. We also run an online course every year, which was initially aimed at educators but is now open to anybody looking to develop the capacities mentioned above.

Robert Bonfiglio, '16 is teaching middle school math and calculus at McQuaid Jesuit in Rochester, NY and plans to start graduate studies in Education Policy at the University of Rochester this summer.

Julia Olivieri, '16 I am a third-year PhD student at the Institute for Computational and Mathematical Engineering at Stanford. I am working with Julia Salzman studying efficient ways to measure molecule abundance.

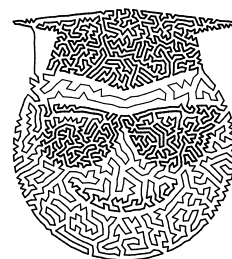
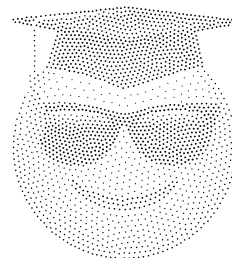
Zhifu Xiao, '16 After graduating from Columbia University with an M.S. Degree in Data Science, I went to BronxCare Health System as a clinical application analyst to support the residents in the south Bronx area and improve their health condition. A month ago, I decided to move to San Francisco and serve as a fraud & verification analyst at Prosper. I attended a small Obies reunion near Mountain View, California and would love to know and meet more Obies in the Bay Area.

Helen Kramer, '17 Since the last newsletter, I became a Humanity in Action Senior Fellow, moved to Boston, and got engaged to Jason Heitler-Klevans (Oberlin physics, '17). I'm continuing to work for Resetting the Table. It has been a full and exciting year!

Rachael Schwartz, '17 I live in Ireland and work as a software developer at world-renowned animation studio Cartoon Saloon. I work on content for Nickelodeon, Amazon, and Disney Channel, as well as two upcoming feature films. I am also in the early stages of coordinating academic research collaboration between Cartoon Saloon and Trinity College Dublin's Graphics, Vision, and Visualization group.

Annie Goodridge, '18 I am now working at the Massachusetts Office of the State Auditor as a data and planning analyst and the ArcGIS subject matter expert. :)

Torrin Hallett, '18 I am a first year Master's student at the Manhattan School of Music studying classical horn performance with New York Philharmonic hornist Richard Deane. I am living in New York and working at Competitive Edge Tutoring to tutor high school students in mathematics as well as SAT and ACT test prep. In February, I played principal horn with the Palm Beach Opera on their production of Don Giovanni.



The point set shown above was designed by Bob Bosch. It has 2019 points. The continuous line drawing beneath it is an optimal tour for the corresponding 2019-city instance of the Traveling Salesperson Problem (TSP). Bob obtained the optimal tour with the Concorde TSP Solver.