

Bianca Arielle Lepe

30 Edgerly Rd. Apt.1, Boston, MA 02115 | blepe94@gmail.com | twitter.com/BiancaLepe

Education

Massachusetts Institute of Technology (MIT) - Cambridge, MA, USA PhD Student, Department of Biological Engineering (GPA: 4.9/5.0)	Anticipated 2023
University of Cambridge, Lucy Cavendish College - Cambridge, England, UK Master of Philosophy in Technology Policy	2018
University of Edinburgh - Edinburgh, Scotland, UK Master of Science in Systems and Synthetic Biology	2017
California Institute of Technology (Caltech) - Pasadena, CA, USA Bachelor of Science in Biological Engineering and Business, Economics, & Management (BEM) (GPA: 3.8/4.0)	2016

Research & Professional Experience

Department of Biological Engineering, MIT - Cambridge, MA

Graduate Research Assistant Sep 2018 ++

- Explored immune cell states across human tissues and disease using single-cell RNA sequencing data and computational analysis with particular focus on using machine learning to study transcriptional signatures of macrophages (Prof. Bryan Bryson)
- Applied natural language processing techniques to, and built machine learning models using, synthetic biology data to elucidate design rules for nucleic acid sensors (Prof. James J. Collins)

Science & Technology Policy Institute, STPI - Washington, DC

Research Extern Jan 2020

- Wrote a thirty-page white paper critically evaluating the state of federal technology transfer (TT) metrics including: a review of current federal mandates and metrics of technology transfer, how federal agencies report TT, challenges in assessing value of federal TT activities and approaches to address those challenges

Genomics England Ltd., National Health Service - England, UK

Research Consultant Feb 2018 - May 2018

- Advised Genomics England, a company owned by the UK Department of Health and Social Care, on electronic consent implementation in the National Health Service (NHS) rollout of genomics medical service
- Analyzed ethical, operational, security and data privacy aspects of e-consent and conducted interviews to develop a tailored, practical framework for effective evaluation of e-consent technologies

Neurocentrx - Edinburgh, Scotland

Business Analyst May 2017 - Sep 2017

- Executed high level competitor and market due diligence on products and the product pipeline by using market research software, conducting interviews with relevant parties, and through attendance of relevant conferences
- Analyzed relevant datasets, intellectual property landscape and regulatory landscape on product to contribute to the company's business plan
- Generated potential business leads/contributors via email and phone and utilized customer relationship management software to maintain all generated leads

Anzu Partners - Washington, DC

Venture Capital Associate Jun 2016 - Aug 2016

- Performed investment activities including networking and sourcing to find investment targets, screening on potential early-stage investments, leading diligence with company, customer and competitor interviews, analyzing financial projections and deal terms to make recommendations on investment decisions
- Performed portfolio activities including developing strategies for new and existing products and services, building and executing operational or organizational plans, creating competitive product and customer pipeline for company growth

Department of Biological Engineering, Caltech - Pasadena, CA

Undergraduate Research Assistant

Jul 2013 - Aug 2015

- Utilized RNA probes to capture transcripts from genes regulated by NF- κ B and sequenced these captured transcripts at different stages of induction to analyze intron splicing. Cloned slow-splicing introns and introduced point mutations to observe differences in splicing dynamics (Prof. David Baltimore)
- As part of the International Genetically Engineered Machine (iGEM) competition, designed a model system to create a biological compound and regulate its concentration outside the cell. Tested three two-component systems (FsrABC, LamBCDA, AgrBCDA) to see which worked most efficiently in E.coli (Prof. Richard Murray)
- Developed a capture agent to use as a diagnostic tool against *Plasmodium falciparum* Histidine Rich Protein II (PfHRP2), a specific biomarker protein for the deadly strain of *P. falciparum* that causes malaria (Prof. Jim Heath)

Publications

- Sequence-to-function deep learning frameworks for synthetic biology. 2020
 Valeri, J.A., Collins, K.M., **Lepe, B.A.**, Lu, T.K. and Camacho, D.M., 2019. [Biorxiv, p.870055](#).
- Reducing gender bias in STEM 2020
 Kong, S., Carroll, K., Lundberg, D., Omura, P., and **Lepe, B.A.**, 2020. MIT Science Policy Review Preprint.
- A general synthetic approach for designing epitope targeted macrocyclic peptide ligands. 2015
 Das, Samir, et al. [Angewandte Chemie International Edition](#). 2015 Nov 2;54(45):13219-24.

Awards & Scholarships

- Karl Taylor Compton Prize**, in recognition of excellent achievements in citizenship & devotion to the welfare of MIT 2020
- Emerging Leader Award**, in recognition of significant diversity & inclusion contributions to the MIT community 2020
- Community Peacemaker Award**, in recognition of addressing conflict within MIT student community through REFS 2019
- UCEM Sloan Scholarship**, awarded for outstanding undergrad performance, exceptional background, & promising future 2018-23
- Marshall Scholarship**, in recognition of high ability - provides financial backing of postgraduate study in the UK 2016-18
- Annabelle Dixon Prize**, in recognition of making most of one's time at Lucy Cavendish College, Uni. of Cambridge 2018
- Mabel Beckman Prize**, in recognition of academic excellence, demonstrated leadership skills, & strong interest in Caltech community 2016
- Deans' Cup**, in recognition of efforts to improve quality of undergraduate life & effective communication w/faculty & admin 2015
- Questbridge Scholarship**, awarded a full four-year scholarship for undergraduate study at Caltech 2012-16

Diversity & Leadership

Graduate Student Council, MIT - Cambridge, MA

Chair, GSC Diversity Equity, & Inclusion Committee ([GSC DEI](#))

Sep 2018 ++

- Chair of the DEI committee which collectively amplifies the voices of, and advocates for, underrepresented groups in higher education so that every graduate student has the full opportunity to thrive at MIT; promotes awareness, engagement, and community building around diverse experiences; & keeps the GSC and MIT departments and administration accountable to improving the recruitment, retention and degree completion of underrepresented groups
 - Advocated for systemic change within the institute to improve culture and climate

- Ongoing initiatives: working to establish regular communication with Institute Community Equity Officer (ICEO); founded the GSC-DEI Fellows - a group of graduate students dedicated to facilitating conversations about race, racism, and social justice; facilitated the creation and dispersion of [best practices](#) for application assistance programs to student leaders and graduate administration assistants; sent [letter](#) to senior administration highlighting equity concerns in COVID-19 pandemic; wrote the GSC Executive Committee [response](#) to Black Lives Matter; organized roundtable on student advocacy in departmental policies for sexual harassment; created an [allyship guide](#) for research groups; actively building a departmental DEI policies and practices database and corresponding [diversity report card](#) (in particular w.r.t. Black Lives Matter/#ShutDownSTEM graduate student demands)
- Future work: have MIT assessed by outside foundation on DEI (e.g. AAAS SEA Change), collect and help incorporate student feedback for MIT DEI strategic plan
- Previously the vice-chair who oversaw the 'Department and Classroom Inclusion' (DCI) Subcommittee, a peer-to-peer development initiative aimed at establishing conduits among all graduate departments in order to improve MIT's ability to advocate for the needs of all students. Organized three conduit assemblies (Sep 2018 - Apr 2019)

Member, Graduate Students of Color Advisory Council ([GSOC-AC](#)) Feb 2019 ++

- Informed the MIT administration about issues important to underrepresented graduate students of color and helped to create non-exploitative and actionable solutions to foster a better MIT community
- Worked with the Offices of the Vice Chancellor and Graduate Education to improve the Institute's practices on admissions, recruitment and retention of underrepresented groups

Institute Wide, MIT - Cambridge, MA

Member, Committee on Race & Diversity (CRD) Sep 2019 ++

- Selected as one of two graduate students to serve on CRD; we are charged with fostering better relations among races of people at MIT and helping the community realize the benefits of cultural and racial diversity
- We are responsible for coordinating a systematic action agenda for improving race relations on campus, developing and distributing relevant resource guides, and administering a model grants program to support projects and activities that promote multicultural understanding and positive race relations
 - Ongoing initiatives: contributed to the Institute Community Equity Officer (ICEO) onboarding document by assessing current DEI initiatives; future work includes facilitating the creation of an institute DEI strategic plan

Member, Title IX & Bias Response Student Advisory Committee (TIXSAC) Sep 2018 ++

- Provided essential input and feedback to the Institute Discrimination & Harassment Response (IDHR) Office on trainings, resource communications, and institute policies on harassment & discrimination
- Selected as one of two graduate students to serve on an interim Institute Committee to advise the IDHR office on policy changes related to compliance to new Title IX regulations (Jun-Jul 2020)

Diversity Ambassador, Office of Graduate Education ([OGE](#)) Sep 2018 ++

- Recruited undergrads from underrepresented groups to MIT's graduate programs via formal/ informal events, including conferences

Member, Presidential Advisory Cabinet (PAC) Sep 2019 - May 2020

- Selected as one of three graduate students to serve on PAC; we acted as a confidential sounding board to the President of MIT and provided them with insight into the student experience and perspective on academic, research, and student life
- Highlighted the need for better communication between leadership and general student body, emphasized underrepresented student issues (during Epstein scandal and COVID-19 events)

Member, Women's Advisory Group (WAG) Jul 2019 - Jun 2020

- Selected as one of two graduate students to serve on WAG; worked with and advised the Special Assistant to the MIT President on areas of concern to women and served as a communications link to the President's Office.

Department of Biological Engineering, MIT - Cambridge, MA

Member, Graduate Student Advisory Group for Engineering ([GradSAGE](#)) Sep 2019 ++

- Advisor to Dean of MIT's School of Engineering on advisor-advisor relationships, leadership, and diversity. Additionally, we informed the Dean of graduate student perspective and challenges on important issues
 - Noted the drastic increase in underrepresented minority applications, but sub-par enrollment of URMs at MIT as compared to top five engineering schools, especially with regards to black students

- Ongoing initiatives: working with the Dean of SOE, the Office of Graduate Education, and key faculty on tracking/reading underrepresented applicants on graduate admissions and instituting diversity statements for faculty hiring; future work includes auditing of admissions and hiring

Member, BE Graduate Student Board (BE Board)

Sep 2018 ++

- Elected representative to the BE Board - a graduate group which gives feedback to department leadership - and focused on issues of DEI, community, and student well-being
 - Highlighted the negative impact of discrimination on graduate students, in particular with LGBTQ+ and students with disabilities, and the corresponding need for increased departmental support and clear, equitable policies
 - Ongoing initiatives: helped establish the department's first DEI specific event over the 2019 interview weekend (a panel where prospective students can ask DEI related questions to current students), presented graduate DEI departmental issues to BE Visiting Committee in 2020, facilitated graduate petition of DEI demands following the Black Lives Matter protests and #ShutDownSTEM which included two sub-petitions to remove the GRE from admissions and the hiring of a DEI director for the department (the GRE was removed due to these efforts in the summer of 2020)
- Participated as a student mentor in BE's Application Assistance Program providing one-on-one assistance to BE applicants from underrepresented groups during the graduate admissions process

Peer Counsellor, BE Resources for Easing Friction & Stress (REFS)

Mar 2019 ++

- Trained as a peer student resource in one-to-one confidential counselling to support the BE community and worked with MIT BE Department leadership and BE Board to improve student experience
- Underwent a week-long training course on conflict coaching and support resources for graduate students

Institute Wide, Caltech - Pasadena, CA

Founder Member, Deans' Advisory Council

Jul 2014 - Jun 2016

- Provided feedback on issues of concern between undergraduate students and the Caltech Deans and ensured effective communication between the students and administration. Served as a sounding board for new initiatives from the Deans' office

Chair & Member, Title IX Student Advisory Board

Nov 2013 - Jun 2016

- Coordinated efforts to engage the community and offer resources, programming, and support regarding Title IX issues. I was the committee chair for 2015-2016 year and coordinated Title IX programming for freshmen orientation

Student Ambassador, Student & Faculty Programs (SFP)

Jun 2014 - Jun 2016

- Served as a peer advisor for SFP programs, participated in donor relations, and facilitated undergraduate research info sessions

Member, Student Experience Committee

Oct 2015 - Jun 2015

- Provided feedback on undergraduate student life to the Caltech Board of Trustees and appraised academic and non-academic programs and policies that impacted students' experience at Caltech. Evaluated strategies for promoting diversity of student body and student recruitment, enrollment, and retention

Secretary, Ruddock House Executive Committee

Feb 2014 - Feb 2015

- Managed alumni relations and coordinated student-alumni events with the Caltech Alumni Association. Elected student representative on the executive committee and was a liaison between the house and Housing office