María Díaz de León Derby

mariaddld.github.io
maria.diaz@berkeley.edu

RESEARCH INTERESTS

I am interested in developing develop machine learning techniques for the diagnosis of Neglected Tropical Diseases, a group of conditions that affect one billion of the world's most vulnerable people.

EDUCATION

Ongoing	**University of California, Berkeley and University of California, San Francisco** Ph.D. in Bioengineering Advised by Prof. Daniel Fletcher
2013-18	**Tecnológico de Monterrey, Mexico (ITESM)** Bachelor of Science in Mechatronics Engineering GPA of 96/100
2016-17	**Karlsruhe Institute of Technology, Germany (KIT)** DAAD Mexican Engineers Exchange Programme Faculty of Mechanical Engineering
2014-15	**University of British Columbia, Canada (UBC)** International Student Exchange Program Faculty of Applied Science

PUBLICATIONS

[1] Jean T. Coulibaly, Kigbafori D. Silue, Maxim Armstrong, **María Díaz de León Derby**, Michael V. D'Ambrosio, Daniel A. Fletcher, Jennifer Keiser, Karla Fisher, Jason R. Andrews, and Isaac I. Bogoch. "High Sensitivity of Mobile Phone Microscopy Screening for Schistosoma haematobium in Azaguié, Côte d'Ivoire". In: *The American Journal of Tropical Medicine and Hygiene* 108.1 (2023), pp. 41–43.

[2] Sita S. Chandrasekaran, Shreeya Agrawal, Alison Fanton, Aditya R. Jangid, Bérénice Charrez, Arturo M. Escajeda, Sungmin Son, Roger Mcintosh, Huyen Tran, Abdul Bhuiya, **María Díaz de León Derby**, et al. "Rapid detection of SARS-CoV-2 RNA in saliva via Cas13". In: *Nature Biomedical Engineering* 6.8 (Aug. 2022), pp. 944–956.

[3] Parinaz Fozouni*, Sungmin Son*, **María Díaz de León Derby***, Gavin J. Knott, Carley N. Gray, Michael V. D'Ambrosio, Chunyu Zhao, Neil A. Switz, G. Renuka Kumar, Stephanie I. Stephens, Daniela Boehm, et al. "Amplification-free detection of SARS-CoV-2 with CRISPR-Cas13a and mobile phone microscopy". In: *Cell* 184.2 (2021), 323–333.e9.

[4] Tina Y. Liu, Gavin J. Knott, Dylan C. J. Smock, John J. Desmarais, Sungmin Son, Abdul Bhuiya, Shrutee Jakhanwal, Noam Prywes, Shreeya Agrawal, **María Díaz de León Derby**, Neil A. Switz, et al. "Accelerated RNA detection using tandem CRISPR nucleases". In: *Nature Chemical Biology* 17.9 (Sept. 2021), pp. 982–988.

[5] Carolina Chávez-Madero*, **María Díaz de León Derby***, Mohamadmahdi Samandari, Carlos Fernando Ceballos-González, Edna Johana Bolívar-Monsalve, Christian Mendoza-Buenrostro, Sunshine Holmberg, Norma Alicia Garza-Flores, Mohammad Ali Almajhadi, Ivonne González-Gamboa, Juan Felipe Yee-de León, et al. "Using chaotic advection for facile high-throughput fabrication of ordered multilayer micro- and nanostructures: continuous chaotic printing". In: *Biofabrication* 12.3 (June 2020), p. 035023.

[6] Ehsan Samiei, **María Díaz de León Derby**, Andre Van Berg, and Mina Hoorfar. "An electrohydrodynamic technique for rapid mixing in stationary droplets on digital microfluidic platforms". In: *Lab Chip* 17 (2 2017), pp. 227–234.

* denotes equal contribution.

[7] B. A. Nestor, E. Samiei, R. Samanipour, A. Gupta, A. Berg, **María Díaz de León Derby**, Z. Wang, H. Rezaei Nejad, K. Kim, and M. Hoorfar. "Digital microfluidic platform for dielectrophoretic patterning of cells encapsulated in hydrogel droplets". In: *RSC Adv.* 6 (62 2016), pp. 57409–57416.

PRESENTATIONS

03/2023 **Tropical Infectious Diseases Gordon Research Seminar**
Poster and Talk: *Mobile Phone-based Diagnostics for Neglected Tropical Diseases: Automated Identification of Schistosoma haematobium from Urine Samples*

10/2022 **American Society for Tropical Medicine and Hygiene 2022 Annual Meeting: Advances in Point-Of-Care Technologies for NTDs Symposium**
Talk: *Machine Learning for Automated Schistosomiasis Detection*

10/2022 **UC Berkeley/UCSF Graduate Program in Bioengineering: Annual Conference and Retreat**
Talk: *Mobile Phone-based Diagnostics for Neglected Tropical Diseases*

09/2021 **UC Berkeley Health Tech Co-Lab Grand Opening**
Invited Talk: *Harnessing Mobile Phones for Diagnosis of Neglected Tropical Diseases*

05/2021 **Conversations on Bioinspired Engineering - Seminar Series, UC Berkeley**
Invited Talk: *Amplification-free detection of SARS-CoV-2 with CRISPR-Cas13a and mobile phone microscopy*

08/2018 **ACS Fall 2018 National Meeting and Exposition**
Poster: *Continuous 3D chaotic printing: Using the chaotic flow induced by a Kenics mixer to continuously fabricate complex micro- and/or nanostructure at high resolution*

01/2018 **2018 Research and Development Congress at ITESM**
Poster: *Continuous 3D chaotic printing: Using the chaotic flow induced by a Kenics mixer to continuously fabricate complex microstructure at high resolution*

AWARDS AND DISTINCTIONS

2022 SACNAS National Diversity in STEM Conference Student Travel Award
2021 UC Berkeley/UCSF Bioengineering Service and DEIB Award
2020 Craven Award in Bioengineering (UC Berkeley Bioengineering)
2019 UC MEXUS-CONACYT Doctoral Fellowship
2016 Mitacs Globalink Fellowship
2016 DAAD Mexican Engineers Scholarship
2014 Emerging Leaders in the Americas Program Scholarship

VOLUNTEER WORK

2022 **Be A Scientist**
Graduate Student Mentor at Longfellow Middle School in Berkeley, California

2013-14 **FIRST Robotics**
Judge Assistant, Field Assembly Volunteer, and Referee

LANGUAGES

Spanish Native
English Native (iBT TOEFL 119/120)

German	Very Good Command (B2.2)
French	Basic Command