
EDUCATION

Ph.D. in Biology, Evolution and Ecology

Palo Alto, CA

Stanford University, Advisor: Professor Moisés Expósito-Alonso

Sept. 2022 – Present

- Developing tools to understand plant adaptation & estimate genetic diversity loss to changing climates.
- Investigating how genetic diversity monitoring tools could be better tuned to determine species' extinction risk extinction and inform global conservation policy.
- Co-leading a documentary to highlight diverse perspectives from community leaders, non-profit organizations, and Indigenous leaders on local conservation issues.

B.Sc in Biochemistry

Montreal, QC

McGill University

Sept. 2015 – Dec. 2018

- BL21 Research Scholar: Research Grant for Independent Student Researchers
- Yale Hackathon Award: Recognized for developing a machine learning solution to access building accessibility
- Chemistry Grant for Exceptional Students in Chemistry

EXPERIENCES

ENCODE Consortium Team Lead

Palo Alto, CA

Stanford University, Advisors: Professor Anshul Kundaje and Professor Jesse Engreitz

April. 2019 - Present

- Organized bioinformatics hackathons to foster community collaboration and advance analysis in the field of Distal Regulation research
- Investigated transcription factor landscapes and chromatin modifiers behavior using deep learning algorithms.
- Organized and lead discussion groups of 30 interdisciplinary scientists to foster effective collaboration.
- Developed a comprehensive resource of enhancer-gene linking tools across 300 cell types and tissues, crucial for analyzing disease risk using complex datasets.

Graduate Student Research Assistant

Palo Alto, CA

Adventure Scientists, Advisor: Lauren Oakes

June. - July 2023

- Performed a comprehensive literature review on mangrove forests globally and in Indonesia.
- Proposed and established comprehensive tests to quantitatively measure how river cleanups aid in improving biodiversity restoration.

Research Assistant

Berkeley, CA

University of California, Berkeley, Advisor: Professor Montgomery Slatkin

April. 2019 - April 2020

- Developed analytical solutions for estimating coalescence probabilities and population divergence times from SNP data in Neanderthals

PUBLICATIONS

1. Lin, M., **Mualim, K.** & *et al.* mar and marApp: An R package with shinyApp for calculating the mutations-area relationship. *In preparation* (2025).
2. IGVFConsortium. Deciphering the impact of genomic variation on function. *Nature* (2024).
3. Fabiha, T. & *et al.* A consensus variant-to-function score to functionally prioritize variants for disease. *bioRxiv* (2024).
4. **Mualim, K.**, Spence, J. & *et al.* Genetic diversity continues to decrease long after habitat destruction halts. *bioRxiv* (2024).
5. Guckelberger, P. & *et al.* Cohesin-mediated 3D contacts tune enhancer-promoter regulation. *bioRxiv* (2024).
6. Gschwind, A., **Mualim, K.** & *et al.* An encyclopedia of enhancer-gene regulatory interactions in the human genome. *bioRxiv* (2023).

7. Exposito-Alonso, M. *et al.* Power and limitations of the mutations-area relationship to assess within-species genetic diversity targets for post-2020 Sustainable Development Goals. *EcoEvoRxiv* (2022).
8. **Mualim, K.**, Theunert, C. & Slatkin, M. Estimation of coalescence probabilities and population divergence times from SNP data. *Heredity* **127** (2021).
9. Nasser, J. *et al.* Genome-wide enhancer maps link risk variants to disease genes. *Nature* **593**, 1–6 (2021).
10. **Mualim, K.** *et al.* A Computational Validation of Enhancer-Gene Linking. *ENCODE Consortium* (2019).

ACTIVITIES

Heat Mapping Campaign Organizer

Palo Alto, CA

Bay Area Heat Mapping Campaign

- Acquired \$23k in funding from the Schmidt Family Foundation
- Trained 60 volunteers on using heat mapping technology and protocols to collect high-resolution environmental data
- Coordinated partnerships with local cities and community organizations to utilize data for effective outreach and policy advocacy

Community Organizer

Palo Alto, CA

Sunrise Movement

- Spearheaded a compensation fellowship program focused on supporting under-served community leaders doing electoral work.
- Fostered partnerships with indigenous organizations, Sogorea Te Land Trust, to involve them in decision-making processes and to respect the principle of free, prior and informed consent when pushing for local policy.
- Collaborated on defining 2020 Sustainability Goals and Passed new building reach codes in Palo Alto
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- Spearheaded a Compensation Fellowship program focused on financially supporting under-served community leaders doing electoral work.

Event Coordinator

Montreal, CA

Roots: Mental Health Alliance

- Collaborated with local organizations to plan art showcase events focused on elevating artists living with mental health issues, featured in Documentary by Green Lion Films.
- Initiated awareness programs and facilitated panel discussions to discuss mental health with experts

Volunteer

Montreal, CA

HANY: Student-run charity with the aim of ensuring human rights for immigrants

- Organized panel discussions and conferences to raise awareness about humanitarian crises, the social integration of refugees and immigration policies.

Finance Director

Montreal, CA

BranchOut Mentorship

- Developed after-school art, cooking, woodworking programs for underfunded high schools
- Fund-raised and managed for resources, supplies for art programs

PROJECTS/AWARDS

- **2025 ROOTS & SHOOT Travel Award:** Awarded to 7 mentor/mentee pairs focused on enhancing plant science research
- **Rising Environmental Leaders Fellow:** Awarded to 15 Fellows aimed at developing leadership and communication skills to maximize research impact
- **McCoy Ethics Graduate Fellow:** Awarded to 12 fellows to examine ethical questions specific to their research

- **Wonderfest Science Envoy:** Awarded to 12 fellows aimed at developing science communication for public outreach
- **STEM-bassador:** Prepared and gave presentations to high school students nationally to expose students to STEM
- **Science Pen Pals:** Participated in a Science Pen Pal program aimed at increasing interest in science, developing communication skills, and encouraging students, primarily from low-income and minority backgrounds, to envision many career paths, such as science.
- **ASHG Trainee Research Excellence Award Winner:** Awarded to 3 out of 1000 presentations at American Society for Human Genetics (ASHG) 2023
- **Top 3 Talk at GEOBON:** Awarded the top 3 talks presented by at the Group on Earth Observations on Biodiversity Observation Network.
- **Scenes from the Anthropocene:** \$25k seed grant to develop projects focussed on bringing community voices to conservation issues
- **Improving building accessibility with Machine Learning:** An app to advise cities on inclusive building accessibility standards. Awarded for the most innovative use of Machine Learning for Social Good.
- **Rising Voices Youth Award:** Awarded by the Sierra Club for our work on improving equity issues in the Bay Area.
- **Team Contribution Award:** Awarded a team that made an outstanding effort in the ENCODE Consortium
- **B21 Scholar:** Awarded to students with innovative research ideas
- **Tomlinson Engagement Award for Mentoring Award:** Awarded to one of the best students in class