Margarita Geleta

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PARTICULARS

EDUCATION

2022-present **University of California, Berkeley**
Ph.D. in Computer Science (present-2026), M.S. in Computer Science (2022-2024)
Major in Artificial Intelligence; Minors in Human-Computer Interaction & Business Administration

2021-2022 **University of California, Irvine (UCI)**
Ph.D. in Computer Science ("transferred", dropped out)

2017-2021 **Universitat Politècnica de Catalunya (UPC)**
Bachelor of Data Science and Engineering

RESEARCH INTERESTS

My research focus is advancing investigative genetic genealogy. In an academic setting, I am interested in the application of AI/ML techniques for enhanced kinship prediction and genotype simulation conditioned on pedigrees. In industry-focused R&D projects, I enjoy working on applied computer vision (CV), spatial computing devices, and extended reality (XR) applications.

EXPERIENCE

PROFESSIONAL EXPERIENCE

2024 **Dolby Laboratories, Inc.**
May - Aug. ***Sound Tech R&D PhD Intern @ Advanced Technology Group*** *(San Francisco, CA)*
· Developed an extended reality (XR) application for spatial audio manipulation and deployed on Apple Vision Pro. Converged into a foundational work for sound design in AR [Pub8].
· Quantified the benefits of free-hand spatial audio manipulation in XR running an HCI user study with +25 users.

2022-2023 **Amazon.com**
2023 ***Applied Scientist II (L5 Intern) @ Home Innovation Team*** *(Seattle, WA)*
· Investigated image-to-image translation methods for novel view synthesis.
· Curated a new dataset of 430 culturally-diverse images for benchmarking GAN inversion and image editing methods and benchmarked identity congruence of original reference images and images edited with InterfaceGAN and StyleSpace between our in-house GAN inversion method with the current public state-of-the-art.
2022 ***Applied Scientist II (L5 Intern) @ Home Innovation Team*** *(Seattle, WA)*
· Worked with large-scale generative models, GAN inversion, and image editing with GANs.
· Contributed to the development of the state-of-the-art model for GAN inversion ("clone" algorithm) [Pub5].

RESEARCH EXPERIENCE

2022-present **NI Lab (UC Berkeley,** co-advised by **Stanford University)**
2022-present ***Graduate Student Researcher*** *(Berkeley/Palo Alto, CA)*
2025 ***Graduate Student Instructor – CS 189/289A Machine Learning*** *(Berkeley, CA)*
· Conducted my Master's Technical Report "*Pedigree-Aware Genotype Simulation*" [Ths2].

2021-2022 **Engaging Technology and Application Design Lab (UC Irvine)**
Graduate Student Researcher & Teaching Assistant *(Irvine, CA)*

· Maintainer of the NSF-funded *Maestro* project [Pub2], providing a service for cybersecurity educational purposes in the domain of adversarial attacks and defenses.

2021 **Bustamante Lab (Stanford University)**
Jun. - Sept. ***Full-time Research Assistant*** *(Remote)*
Feb. - Jun. ***Part-time Research Intern*** *(Remote)*
· Explored novel Deep Learning techniques such as *Variational Autoencoders* (VAEs) with genomic data in a focus in dimensionality reduction, compression, privacy, and data simulation [Pub6].

2020-2021 **Image Processing Group (GPI)**
Sept. - Mar. ***Independent Researcher*** *(Barcelona, Spain)*
· Investigated Deep Learning architectures for Audio Steganography [Pub1, Pub4].

SELECTED PUBLICATIONS & PREPRINTS

[Pub1] **Margarita Geleta**, Cristina Punti, Kevin McGuinness, Jordi Pons, Cristian Canton, and Xavier Giro i Nieto. **PixInWav: Residual Steganography for Hiding Pixels in Audio**. In *ICASSP 2022 – 2022 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pages 2485–2489, 2022.

[Pub2] **Margarita Geleta**, Jiacen Xu, Junlin Wang Manikanta Loya, Sameer Singh, Zhou Li, and Sergio Gago-Masague. **Maestro: A Gamified Platform for Teaching AI Robustness**. In *The Thirteenth Symposium on Educational Advances in Artificial Intelligence (EAAI-23) in the Association for the Advancement of Artificial Intelligence Conference (AAAI)*, 2023.

[Pub3] Míriam Barrabés*, Daniel Mas-Montserrat*, **Margarita Geleta**, Xavier Giró i Nieto, and Alexander G. Ioannidis. **Adversarial Learning for Feature Shift Detection and Correction**. In *Neural Information Processing Systems (NeurIPS)*, New Orleans, USA, 12/2023 In Press.

[Pub4] Jaume Ros*, **Margarita Geleta***, Jordi Pons, and Xavier Giro i Nieto. **Towards Robust Image-in-Audio Deep Steganography**. (Available at ArXiv), 2023.

[Pub5] Qianli Feng, Viraj Shah, Raghudeep Gadde, **Margarita Geleta**, Pietro Perona, and Aleix M. Martinez. **Near Perfect GAN Inversion**. (Under legal review. Further information upon request), 2023.

[Pub6] **Margarita Geleta**, Daniel Mas Montserrat, Carlos D. Bustamante, Xavier Giró i Nieto, and Alexander G. Ioannidis. **Autoencoders for Genomics**. (Submitted. Awaiting decision), 2025.

[Pub7] Richa Rastogi*, Arvind S. Kumar, Helgi Hilmarsson, **Margarita Geleta**, Carlos D. Bustamante, Daniel Mas Montserrat, and Alexander G. Ioannidis. **Ge3Net: Inferring Continuous Population Structure Coordinates Along the Genome**. (Submitted. Awaiting decision), 2025.

[Pub8] Brandon Woodard*, **Margarita Geleta***, Joseph J. LaViola Jr., Rhonda Wilson, and Andrea Fanelli. **AudioMiXR: Spatial Audio Object Manipulation with 6DoF for Sound Design in Augmented Reality**. (Available at ArXiv), 2025.

THESES

[Ths1] **Margarita Geleta**. **Bachelor Thesis: Unsupervised Learning with Applications in Genomics**. `https://upcommons.upc.edu/handle/2117/353817`, 2021.

[Ths2] **Margarita Geleta**. **Master's Technical Report: Pedigree-Aware Genotype Simulation**, 2024.

TECHNICAL SKILLS

Programming C++, C, C#, Python, R, Dart.
Markup HTML5, CSS3.
Databases PostgreSQL, SQLite, Neo4j.
Scripting JS, PHP, Bash.
Frameworks Unity3D, PyTorch, Flutter, ReactJS.

LANGUAGES

Spanish, Catalan & Russian: native.
English: proficient in spoken and written English.