Oren Xavier Fugón, Ph.D.

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SUMMARY

- Ph.D. focusing on epigenetic editing for a neurogenetic disorder called Angelman syndrome
- Co-mentored by Dr. David J Segal & Dr. Janine LaSalle, funded by a collaboration with Biogen biotechnology
- I characterized the RNA expression, epigenetics & chromatin loops of a proposed neuronal cell culture model
- My goal was to use dCas9 artificial transcription factors to alter chromatin landscape & unsilence the imprinted allele of *UBE3A*
- Collaborated on projects that involve CRISPR RNA nucleases as well as autism research
- Profound interest in the intersection of biology & computational science
- Extensive experience in prompt engineering for large language models, including applying it to build tools & automation

TECHNICAL SKILLS

- **Cell Biology:** Neuronal cell culture, cell engineering, chromosome conformation capture, FACS, Drosophila husbandry (Gal4/UAS)
- **Microscopy/Imaging:** Brightfield & fluorescent microscopy, EVOS cell imaging & analysis
- **Molecular biology:** CRISPR, cloning, RT/qPCR, viral & PiggyBac transduction, nucleofection, stable & transient transfection
- **Genomics:** RNA-seq, 10x linked read sequencing, Oxford Nanopore sequencing, methylation analysis, 4C, Hi-ChIP
- **Bioinformatics:** Bash, MACS3, bedtools, pairtools, samtools, deeptools, FitHiChIP, Clair3, Whatshap, F5c, minimap2, R, Python
- **Statistics & Modeling:** Monte Carlo simulation, paired t-tests, probability distributions, predictive modeling
- **Software Engineering:** Comfortable across Swift, Python, R/R Shiny, JavaScript, PHP & Bash, quick to learn new languages, shipping iOS, web & desktop apps
- **AI/ML:** Proficient in deep learning, training & utilizing diffusion models in ComfyUI & building local AI agents with n8n, plus agentic coding with Claude Code & Codex IDE & authoring Claude skills & subagents

EDUCATION

- Ph.D., Integrative Genetics and Genomics graduate group, UC Davis, 2023
- BS, Biology, University of California Irvine, 2016
- AS Chemistry, Biology, Orange Coast Community College, 2014

RESEARCH & WORK EXPERIENCE

TetraGammaTron Labs
Founder & Lead Developer *2025 to present*
- Founded an independent software company building probability-modeling tools for web, iOS & desktop
- Built CMEye, an interactive R-engine web app that scores pre/post CME tests & builds outcomes reports for med-ed clients
- Developed TankOdds, an NBA draft-odds & bracket simulator that runs thousands of Monte Carlo trials, on web & iOS
- Launched BurnGauge, a macOS menu-bar app & Python/PyQt5 Linux build that projects AI-assistant usage with a burn-rate model
- Wrote a CME grant pipeline of Claude Code skills & subagents for file extraction, drafting & citation checks
- Shipped additional iOS tools for the lab bench & CME, also run the lab's sites & CMEye's API on a self-hosted VPS

iVista Medical Education
Chief Science Officer *January 2024 to present*
- Oversee the development, approval, & review of medical education programs, ensuring compliance & accuracy
- Provide medical expertise to content teams, collaborating with key opinion leaders to develop & approve educational materials
- Lead statistical analyses to evaluate the impact of educational interventions, driving improvement & strategic decision-making
- Developed a cross-platform R application that turns raw surveys into grantor deliverables with standardized analytics & visuals
- Write industry-sponsored CME grant proposals with learning objectives, gaps-and-needs narratives & verified references
- Analyze pre/post outcomes with paired t-tests, confidence scoring & practice-change intent

OpenAI
AI Trainer - Freelance Consultant *May 2024*
- Contributed scientific expertise to a Red Team project assessing bio-risks for ChatGPT-4o
- Engaged with the OpenAI community forum to share insights & gather feedback on AI safety strategies

University of California Davis
Graduate Student Research Associate *September 2017 to December 2023*
- Determining the Role of CTCF Loops in Neuron-Specific Paternal Imprinting of *UBE3A*
- Characterized the imprinting of *UBE3A* in LUHMES neuronal cells investigating a preclinical epigenetic therapy to unsilence it
- I wrote the grant, designed the study, performed all the assays, & analyzed the data bioinformatically

University of California Irvine
Undergraduate Researcher, Dr. Luis Mota-Bravo Lab *August 2014 to June 2016*
- Used *in-vivo* & *in-silico* methods to screen for novel efflux pump inhibitors in ciprofloxacin-resistant *Staphylococcus aureus*

TEACHING & MENTORING EXPERIENCE

- 2019 - Mentored an undergraduate researcher as part of the UC-HBCU Initiative, student was admitted to graduate program

- 2022 - Mentored a underrepresented minority student as part of the Sacramento Charter High School Summer Research Program

AWARDS

- T32: NIH Predoctoral Training Grant in Molecular and Cellular Biology, UC Davis, 2018, extended in 2019
- T32: NIH Predoctoral Training grant in Environmental Health Sciences, UC Davis, 2018, award declined since accepted MCB T32
- NIH Initiative for Maximizing Student Development (IMSD) Trainee, UC Irvine, 2017
- NIH Minority Access to Research Careers (MARC) Scholar, UC Irvine, 2015
- NIH Minority Health and Health Disparities International Research Trainee (MHIRT): King's College, London, 2015
- NSF-Undergraduate Research Mentoring in the Biological Sciences (URM), UC Irvine, 2014
- NIH Bridges to Baccalaureate, UC Irvine, 2014

CONFERENCE PRESENTATIONS

- American Society of Gene and Cell Therapy, Poster presentation, 2023
- American Society of Human Genetics Annual Meeting, Poster presentation, 2018
- Biomedical Research Conference for Minority Students (ABRCMS), 2014, Winner for Outstanding Presentation in Public Health

SELECTED PUBLICATIONS

Gutierrez Fugón OJ, Sharifi O, Heath NC, Soto DC, Gomez JA, Yasui DH, Mendiola AJ, O'Geen H, Beitnere U, Tomkova M, Haghani V, Dillon GM, Segal DJ, LaSalle JM. 2024. Integration of CTCF Loops, Methylome, and Transcriptome in Differentiating LUHMES as a Model for Imprinting Dynamics of the 15q11-q13 Locus in Human Neurons. *Hum. Mol. Genet.* https://doi.org/10.1093/hmg/ddae111

Zhu Y, Gomez JA, Laufer BI, Mordaunt CE, Mouat JS, Soto DC, Dennis MY, Benke KS, Bakulski KM, Dou J, Marathe R, Jianu JM, Williams LA, **Gutierrez Fugón OJ**, Walker CK, Ozonoff S, Daniels J, Grosvenor LP, Volk HE, Feinberg JI, Fallin MD, Hertz-Picciotto I, Schmidt RJ, Yasui DH, LaSalle JM. 2022. Placental Methylome Reveals a 22q13.33 Brain Regulatory Gene Locus Associated with Autism. *Genome Biol.* https://doi.org/10.1186/s13059-022-02613-1

OTHER SKILLS

Software WashU, UCSC Genome Browsers, SnapGene, Primer3, CHOPCHOP, SWISS-MODEL, Chimera, Node-based AI workflows
Other Languages Fluent in Spanish, Beginner level French