

Sofia Marquina

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EDUCATION

University of Miami, Miami, FL

Master of Science in Biomedical Engineering (M.S.B.E.)

Expected Graduation:

May 2027

University of Florida, Gainesville, FL

Bachelor of Science, Psychology - Behavioral and Cognitive Neuroscience

May 2025

Bachelor of Science, Microbiology and Cell Science

May 2025

WORK EXPERIENCE

Adaptive Needs Gymnastics Coach

Jul 2024 – Jul 2025

Balance 180

Gainesville, FL

- Led gymnastics programs for neurodiverse athletes ages 2 to 35+, including Special Olympics competitors, to develop new skills, strength, and confidence.
- Designed individualized training programs focused on enhancing mobility and functional independence for athletes with cerebral palsy, verbal and nonverbal autism, Smith-Lemli-Opitz syndrome, and other physical or neurological disabilities.
- Applied positive reinforcement and proactive redirection to foster a supportive, motivating space where all athletes felt challenged, celebrated, and empowered to grow.
- Collaborated with therapists and families to enhance athletes' neuromuscular development, mobility, mental health, and overall communication.

Medical Assistant & Ophthalmic Technician

May 2020 – Aug 2022

Malkani Retina Center

Naples, Fort Myers, and Port Charlotte, FL

- Performed patient intake, updated medical records, administered ophthalmic medications, and provided pre-/post-operative care for 20+ patients daily.
- Conducted diagnostic exams such as visual acuity, visual field, color vision, and tonometry while educating patients on the testing protocols and purposes.
- Trained and mentored new technicians, providing hands-on instruction in diagnostic testing, clinic protocols, and patient interaction, enhancing team efficiency and reducing overall patient wait times by 15%.
- Shadowed ophthalmologists in clinical evaluations and surgeries, observing retinal procedures, laser treatments, and advanced diagnostic techniques to further understand disease management and surgical care.

Patient Care Assistant

Jan 2018 – May 2020

Personal Employer, Avante at St. Cloud

St. Cloud and Naples, FL

- Provided comprehensive long-term and palliative care for a medically complex, non-ambulatory patient, developing personalized regimens to manage pressure ulcers, improve circulation, and enhance quality of life.

RESEARCH EXPERIENCE

Graduate Research Assistant

Feb 2026 – Present

Castilla-Casadio Lab, UM College of Engineering

Miami, FL

- Engineering injectable, dynamic, nanofibrous hydrogels to direct stem cell chondrogenesis for cartilage repair in osteoarthritis.
- Encapsulating human bone marrow-derived mesenchymal stem cells (hBM-MSCs) in 3D hydrogels and evaluating viability and cytocompatibility using fluorescence-based imaging.
- Investigating how hydrogel matrix architecture and rheology govern hMSC behavior, matrix deposition, and chondrogenic differentiation.

Graduate Research Assistant

Aug 2025 – Feb 2026

C.-Y. Huang Biomechanics Lab, UM College of Engineering

Miami, FL

- Designed and prototyped biomedical devices integrating novel rehabilitation mechanisms to improve mobility and recovery outcomes, while minimizing pain.
- Applied systems engineering methodology (user needs, design inputs, verification and validation planning) to develop a novel CAD-based rehabilitative knee device aimed at improving flexion-extension range of motion and kinematic alignment.
- Conducted a case study and literature review on multi-ligamentous knee injuries.

Laboratory Research Assistant

Oct 2024 – May 2025

D.D. Fuller Lab, UF McKnight Brain Institute

Gainesville, FL

- Investigated AAV9 lingual-directed gene therapy for Pompe disease and its potential to reduce glycogen accumulation and improve respiratory and neuromuscular function.
- Performed cryosectioning, immunohistochemistry, and neural assessments on rodent models, analyzing neuronal health and diaphragm electrophysiology.

Chagas Disease Research Program Intern

Aug 2024 – Dec 2024

Kissing Bug Alliance, University of Florida

Newberry and Gainesville, FL

- Connected with 100+ community members at health education fairs and community events, raising awareness of Chagas disease and its impact on at-risk populations.
- Conducted an epidemiological literature review on transmission patterns, diagnostic barriers, and healthcare disparities, advocating for improved disease education, testing accessibility, and clinical intervention.
- Managed the Kissing Bug Alliance website to ensure accessible, accurate, and up-to-date patient education materials.

LEADERSHIP & SERVICE

Women's Student Association Marketing Chair

Aug 2024 – May 2025

Women's Student Association (WSA), University of Florida

Gainesville, FL

- Managed and updated the WSA website to ensure students had access to event updates, advocacy efforts, and volunteer opportunities, increasing online interactions by 38%.
- Created digital and hand-drawn infographics to enhance engagement and education on women's rights, health, and policy issues.

UF HealthStreet Community Health Volunteer

Aug 2024 – Oct 2024

University of Florida HealthStreet

Gainesville, FL

- Organized community health fairs to expand healthcare access, translating for community members and coordinating free screenings, vaccinations, and essential resources for individuals facing homelessness, disability, and healthcare disparities.
- Conducted 50+ health needs assessments by measuring vital signs, identifying urgent medical and social concerns, and recruiting participants for relevant research studies to improve the community's representation in scientific data.

Medical Receptionist Volunteer

Jun 2019 – Mar 2020

Physicians Regional Hospital

Newberry and Gainesville, FL

- Managed a multi-line phone system and organized medical records, optimizing provider-patient communication and streamlining administrative efficiency.
- Established excellent customer service by answering 100% of inquiries from members, providers, and physicians regarding surgical status updates and patient navigation.

CERTIFICATIONS

Basic Life Support, American Heart Association

Jan 2023 – 2025

Certified Nursing Assistant, Florida Department of Health

Apr 2024 – May 2026

SKILLS

Laboratory: Hydrogel fabrication, rheology, cell culture and encapsulation, RT-qPCR, cryosectioning, immunohistochemistry, fluorescence and confocal microscopy, biochemical assays

Computer: Python, SPSS, statistical analysis, Electronic Medical Records, Computer-Aided Design

Language: Spanish (Native), English (Native)