Jairo Narro Silva

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Education

Universidad de Ingeniería y Tecnología - UTEC — Lima, Peru
B.S. in Bioengineering — 2018 - Present

Research Experience

Feb 2023 - Act. **National Institute for Telecommunications Research and Training (INICTEL-UNI)**
Research Assistant
Project: Silver Nanoparticle-based colorimetric sensors

- Reviewing literature to understand the fundamental principles of colorimetric detection with nanoparticles and its medical and environmental applications.
- Proposing ideas for the integration of colorimetric sensors in microfluidic devices.

Jan - Mar 2022 **Purdue University, Birck Nanotechnology Center, Electron Microscopy Facility**
Research Intern (Remote)
Project: Automation of Focused Ion Beam (FIB) bitmap milling for micro/nanofabrication

- Investigated the formation mechanism of profile errors in 3D microstructures and optimization methods to improve fabrication accuracy in FIB bitmap milling.
- Developed a Graphical User Interface in Python to facilitate the generation of bitmap files and the micro/nanopatterning process.

Jun - Aug 2021 **Case Western Reserve University & Cleveland Clinic**
Biomedical Engineering Intern (Remote)
Project: Joystick-operated Computer Mouse for People with Bilateral Amputation

- Designed a 3D CAD model of the prototype with Autodesk Inventor.
- Participated in fireside chats about the current research on biomedical engineering.

Mar - Jul 2021 **Universidad Tecnológica del Perú, IEEE EMBS Student Chapter**
Biomedical Engineering Researcher (Remote)
Proyecto: Identification of voice signal parameters by machine learning for the diagnosis of Parkinson's Disease

- Identified 3 voice parameters as potential biomarkers with the best accuracy score of 97.8%
- Analyzed and visualized data using Python and Jupyter Notebook.

Conference Publications

Narro, J., & Diaz, R. (2022). A New Tool for Automation of Focused Ion Beam Bitmap Milling of Two-and Three-Dimensional Micro and Nanostructures. Microscopy and Microanalysis, 28(S1), 88-90. doi:10.1017/S143192762200126X

Presentations

POSTER PRESENTATIONS

Narro, J., & Diaz, R. A New Tool for Automation of Focused Ion Beam Bitmap Milling of Two-and Three-Dimensional Micro and Nanostructures, IEEE NanoPeru 2022 Congress, November 2022.

Larriega, S., Loayza G., & **Narro, J.** CRISPR-based Microfluidic Biosensor for the Diagnosis of Infectious Diseases in Remote Areas of Peru, Cleveland Clinic – UTEC Summit 2022, October 2022.

ORAL PRESENTATIONS

Narro, J. Automation of Bitmap Files Generation for the Fabrication of Micro-and Nanostructures with a Focused Ion Beam, REPU Seminar 2022, April 2022.

Narro, J., & Garcia, V. Selection of Voice Parameters for the Diagnosis and Monitoring of Patients with Parkinson's Disease, Biomedical Engineering Research Program, IEEE EMBS Student Chapter – UTP, July 2021.

Awards and Recognitions

Oct 2022	**Third place in Cleveland Clinic - UTEC Challenge 2022** Poster competition on low-cost technologies in the post-pandemic era
May 2022 - Feb 2023	**PRONABEC Continuidad de Estudios Scholarship 2022** National need-based scholarship for students with strong academic performance
Jan - Mar 2022	**nanoREPU Program 2022 (Research Experience for Peruvian Undergraduates)** Selected by the nanotechnology branch for a research internship at Purdue University

Extracurricular Activities

May - Jun 2022	**AIChE - American Institute of Chemical Engineers**, K-12 Program Organized science and engineering workshops for elementary and high school students
Jun - Jul 2022	**REPU - Research Experience for Peruvian Undergraduates**, Volunteer ● Gave informative talks about the REPU program to undergraduate students ● Organized the annual meeting to discuss new ways to improve the program
Ene - Mar 2022	**REPU- Research Experience for Peruvian Undergraduates**, Journal Club Discussed research articles on nanotechnology and prepared scientific presentations
Aug 2020 - Aug 2021	**SBE - Society for Biological Engineering**, Project Committee Planned and organized workshops and activities about biotechnology and bioprocess topics
Feb 2021	**Edukay,** Volunteer Instructor Taught +200 elementary and middle school teachers how to implement digital educational tools in their classes to improve online teaching during the pandemic
Jul - Aug 2020	**Invent UTEC**, Profesor de Software CAD Taught high school students 3D modeling and design with Onshape

Extracurricular Courses

Nanotechnology: A Maker's Course, Research Triangle Nanotechnology Network, Coursera
Introduction to Data, Signal, and Image Analysis with MATLAB, Vanderbilt University, Coursera
Scanning Electron Microscopy, Microscopy Australia, Myscope
Focused Ion Beam, Microscopy Australia, Myscope

Skills

Laboratory:	Solution preparation, Optical Microscopy, Microbiological Culture, Protein Extraction, Familiar with PCR, Gel Electrophoresis, and Spectophotometry.
Bioinformatics:	MEGA X, PAUP, BioEdit, Bioconductor.
Software:	Autodesk Inventor, COMSOL Multiphysics, LabVIEW, Onshape, Multisim Live.
Programming:	Python, MATLAB, R
Additional:	SLA 3D printing, Arduino (Basic)

Certifications

Dec 2021	**Participation in BIOHACK - Biomedical Engineering Hackathon (Tecnológico de Monterrey, IEEE EMBS Student Chapter)** Project: Automated mechanism for physiotherapy and knee rehabilitation

Oct 2021	**Participation in NASA's International Space Apps Challenge 2021** Project: COVID Tracker - A mobile app that calculates the risk of contagion.
Dec 2020	**Volunteer in the International Forum on Applied Biotechnology and Bioreactors 2020** American Institute of Chemical Engineers - AIChE PERU
Nov 2020	**Participation in POSTA Hackaton 2020 (Open Source Assistive Technology Projects)** Project: Adapted cutlery kit for people with motor disabilities
Sep 2020	**Participation in the Bioentrepreneurship and Project Management Program** Society for Biological Engineering (SBE - UTEC)