

# Jairo Narro Silva

DEPARTMENT OF BIOENGINEERING  
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## Education

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### Universidad de Ingeniería y Tecnología - UTEC

B.S. in Bioengineering

Lima, Peru

2018 - Present

**Relevant Coursework:** Biotechnology Processes I & II, Tissue Engineering, Sensors and Bio-MEMS, Biomaterials, Advanced Bioinformatics, Laboratory Topics in Bioengineering, Physiology and Physiopathology, Biotransport.

## Research Experience

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### Feb 2023 - Act. National Institute for Telecommunications Research and Training (INICTEL-UNI)

Research Assistant

Project: Silver Nanoparticle-based colorimetric sensors

- Reviewing the 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 upper limb 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)

Project: 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

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**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

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### 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

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

#### Extracurricular Activities

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May - Jun 2022	<b>AIChE - American Institute of Chemical Engineers, K-12 Program</b> Organized science and engineering workshops for elementary and high school students.
Jun - Jul 2022	<b>REPU - Research Experience for Peruvian Undergraduates, Volunteer</b> <ul style="list-style-type: none"><li>• Gave informative talks about the REPU program to undergraduate students.</li><li>• Organized the annual meeting to discuss new ways to improve the program.</li></ul>
Ene - Mar 2022	<b>REPU- Research Experience for Peruvian Undergraduates, Journal Club</b> Discussed research articles on nanotechnology and prepared scientific presentations.
Aug 2020 - Aug 2021	<b>SBE - Society for Biological Engineering, Project Committee</b> Planned and organized workshops and activities about biotechnology and bioprocess topics.
Feb 2021	<b>Edukay, Volunteer Instructor</b> 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	<b>Invent UTEC, CAD Software Teacher</b> Taught high school students 3D modeling and design with Onshape.

#### Extracurricular Courses

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**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

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

## Certifications

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- 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 Hackathon 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)