

Ravneet-Rahul Sandhu Singh

Biomedical Engineer

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📍 RahulSandhu

📍 Barcelona, Spain



Skills

Go

MATLAB

Python

R

SQL

Languages

Catalan

English

Punjabi

Spanish

Profile

I am a biomedical engineer with hands-on research experience in signal processing and health data analysis. I continuously expand my knowledge by learning new programming languages and exploring new fields through courses, projects, and open-source contributions.

Work Experience

Doctoral Researcher

Oct 2026 – Present

IBEC & VHIR, Hospital Universitari Vall d'Hebron, Spain

Leads the mScreenSleep project on smartphone- and wearable-based mHealth for non-invasive sleep apnea diagnosis; manages multimodal data acquisition and AI analysis, validated against gold standards in general, paediatric, and SCI populations.

Technical Research Support

Feb 2026 – July 2026

IBEC, Spain

Research assistant within the "Green Electrodes for Sustainable Electrophysiology" (GreenELECTRO) project at IBEC, responsible for ECG data acquisition, signal processing, and electrical characterization of novel eco-sustainable electrodes.

Clinical Informatics Intern

Apr 2026 – Aug 2026

Hospital Clínic de Barcelona, Spain

Conducted a study to compare clinical entity coding across multiple terminologies (ICD-10, SNOMED-CT, ICD-11) to calculate completeness, concordance, and clinical specificity metrics.

Technical Research Support

May 2023 – May 2024

IBEC, Spain

Research assistant on the "La Marató de TV3" funded project investigating respiratory system evolution in COVID-19 patients and treatment of resulting pneumonia. Collaborated with multiple hospitals for data collection, coordinated team reports, and contributed to the signal processing pipeline.

Education

PhD in Biomedical Engineering

Oct 2026 – Present

Universitat Politècnica de Catalunya (UPC), Spain

Field of study: digital health and biomedical signal processing.

MSc in Health Data Science

Sep 2024 – Sep 2026

Universitat Rovira i Virgili, Spain

Inter-university programme (EIT Health funded). Health data management, statistical modeling, machine learning, digital health, and ethics. Current grade: 9/10.

BSc in Biomedical Engineering

Jul 2019 – May 2024

Universitat Politècnica de Catalunya, Spain

Engineering fundamentals (mathematics, physics, electronics), biomedical signal and image analysis, biomechanics, biomaterials, and clinical engineering. Final grade: 8/10.

Publications

Entropy Measures for Heart Rate Variability Analysis

Sep 2026

MEDICON 2026, Siena, Italy

Entropy measures for HRV to distinguish between NSR and CHF patients. Awarded the IFMBE Students and Early Career Researchers Travel Fellowship and named Young Investigators Competition Winner.

Evaluation of WHO Coding Tool for ICD-11 Code Conversion from ICD-10 and SNOMED-CT

Oct 2026

WHO-FIC Network Annual Meeting 2026, Sydney, Australia

Poster (submitted). Evaluation of WHO CodeFusion, an Apache Lucene-based NLP tool for mapping ICD-10 and SNOMED-CT clinical terminologies to ICD-11 MMS. Concordance analysis between discharge diagnoses and health problems with threshold optimization and post-coordination support.

How do age and gender affect the respiratory pattern in healthy subjects?

Jul 2024

EMBC 2024, Orlando, USA

This study explores how age and gender affect respiratory behavior in healthy individuals through signal-based variability analysis, presented at the IEEE Engineering in Medicine and Biology Conference (EMBC) 2024.