

ANTHONY AROSTEGUI

Industrial Engineer, Software Developer & Researcher
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ABOUT ME

Software Engineer with 8 years of full-stack experience designing and developing scalable web/mobile applications and research software. I specialize in React and Next.js, with strong experience building UIs, integrating REST APIs. I'm passionate about performance, clean code, and collaborating closely with design and product to deliver seamless user experiences. I bring additional strength in Computer Vision and Augmented Reality, which deepens my product intuition and innovation mindset. My foundation in scientific and visual technologies brings a thoughtful, quality-driven approach to user-facing engineering.

PROFESSIONAL EXPERIENCE

10/2021 - Present | eBombo - Software Engineer

Lima, Perú

- Designed, built, and maintained the company's multiplayer gaming platform architecture, handling frontend, backend, and cloud infrastructure end-to-end.
- Developed and scaled real-time multiplayer gaming web apps using Next.js, React, Zustand, React Query and TypeScript, supporting 500+ concurrent users. Implemented CI/CD pipelines with GitHub Actions and automated deployments via GCP (Cloud Run, Cloud Build, Docker, Cloud Storage) and Firebase.
- Integrated an Open API service for automatic quiz and survey content generation.
- Reduced game scoring algorithm processing time by 40%, improving performance, enhancing player experience, and reducing billing cost.

07/2018 - 10/2021 | BBVA - Tech Leader

Lima, Perú

- Led a 5-person Agile team at BBVA to build secure mobile and IVR web platform features, including a security layer that reduced fraud and hacking activities by 70%. Tech Stack used: Kotlin (Android), Polymer (JavaScript), Apache Cordova, PostgreSQL and integrations with third-party APIs.
- Developed new features for the BBVA IVR web platform using Lit-HTML and Polymer frameworks. System logic optimizations reduced call center response time by 30%, while applying TDD (Test Driven Development with Jest and Puppeteer) helped minimize bug reports and improve code reliability.
- Collaborated closely with stakeholders to define technical requirements, align product vision, and ensure timely delivery of critical features, while coordinating with BBVA Holding Scrum teams across Spain, USA (Dallas), Colombia, and Argentina.
- Built automated end-to-end and UI tests for the mobile web hybrid view using JavaScript and Selenium, improving regression testing coverage and reducing manual QA efforts.

03/2017 – 03/2018 | Voz3D: Sign Language Tech Startup - Software Developer

Lima, Perú

- Developed a Progressive Web Application (PWA) that translates voice or text into sign language using 3D gestural animations.
- Integrated Firebase for backend services, Three.js for 3D rendering, and Blender for animation modeling.
- Contributed to social inclusion by making communication more accessible for the hearing-impaired community.
- Voz 3D was selected as a Startup Perú 4th Generation winner and received government funding to scale the solution.

RESEARCH EXPERIENCE AND PROJECTS

09/2022 - 10/2022 | ReGOSH - Software & Hardware Developer and Researcher

Residency of Gathering of Open Science Hardware (ReGOSH)

Mendoza, Argentina

- Visited agroecological communities to gather needs and explain and train to use open-hardware instruments.
- Collaborated with Universidad Nacional de Cuyo and local agroecological communities to design and build open-hardware instruments for measuring air and water quality.
- Developed firmware using Arduino (C/C++) and user interfaces with JavaScript and CSS for sensor data visualization and usability.

- Conducted field visits to rural communities to identify needs, deliver hands-on training, and ensure proper use and maintenance of the devices.
- Promoted open science and environmental awareness by empowering local users with accessible, low-cost monitoring tools.

10/2019 - 01/2021 | Prllel - ML & Fullstack Developer

Prllel: A social Augmented Reality platform for users to interact with the environment.

Lima, Perú

- Designed and deployed deep learning models for depth estimation and planar detection using PyTorch and the NYUv2 Image Dataset. Served models via Flask microservices with Celery and PostgreSQL using SQLAlchemy.
- Built the entire platform architecture (frontend, backend, and infrastructure) using Gin (Golang), PostgreSQL, DGraph (Graph DB), Docker, GitHub Actions, and DigitalOcean.
- Developed cross-platform frontends using Vue.js and TailwindCSS (web), and Flutter (iOS/Android).
- Integrated monitoring and observability with Prometheus and Grafana to track performance and system health.
- Applied Test-Driven Development (TDD), conducted stress testing and end-to-end testing using K6 to ensure system reliability and performance under load.

10/2020 - 04/2021 | Universidad Cayetano Heredia - Software Engineer

ResploT Project: Remote Health Monitoring for COVID-19 Patients.

Lima, Perú

- Integrated software with IoT devices to collect real-time health data (e.g., temperature, oxygen saturation, heart rate) and display it via a responsive dashboard.
- Built the platform using Vue.js and TailwindCSS (frontend), Firestore (NoSQL DB), and Firebase Functions with TypeScript (backend).
- Applied best practices in scalability, maintainability, and real-time updates to support health professionals' remote decision-making.
- Project selected as a winner of the Engineering X Pandemic Preparedness initiative, receiving international recognition and funding.

12/2015 - 02/2016 | Universidad de Ingeniería y Tecnología - Researcher

Project-based Learning Proposal

Lima, Perú - California, USA

- Led a project that won the Universidad de Ingeniería y Tecnología Hackathon focused on innovative learning methodologies.
- Conducted interviews and qualitative analysis to evaluate the effectiveness of project-based teaching methods.
- Visited leading institutions including Khan Lab School, Intel Labs, Stanford University, and Carnegie Mellon University to gather insights and best practices.

EDUCATION

2017 | Bachelor of Science in Industrial Engineering with IT specialisation

Universidad de Ingeniería y Tecnología (UTEC) - top fifth of the class

Lima, Perú

Thesis: Assessment of awareness and engagement in ads with Augmented Reality and Gamification elements.

PUBLICATIONS

2022 | [Development of an IoT Device for Measurement of Respiratory Rate in COVID-19 Patients](#)

FURTHER TRAINING

06/2020 | Deep Learning Specialization - Coursera - [Deeplearning.ai](https://www.coursera.org/learn/deeplearning)

- Neural Network and Deep Learning
- Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization
- Structure Machine Learning Projects & Convolutional Neural Networks

03/2021 | Augmented Reality and Virtual Reality - The Interaction Design Foundation

08/2016 | Global Startup Lab Bootcamp Program - MIT - Universidad de Ingeniería y Tecnología

SKILLS

Languages: Spanish (Native), English (Advanced, IELTS band 7, C1).

Programming Languages: Python, R, Octave, C, JavaScript, TypeScript, Java, Golang, Rust, Swift, K, SQL.

Frameworks: Jupyter, Tensorflow, Pytorch, Flask, ScikitLearn, Pandas, Node.js, [React.js](#), [Next.js](#), Zustand, ReactQuery, Vue.js, Processing, P5.js, Flutter, Android, iOS, Arduino, Unity, Vuforia, ARKit, ARCore, ARtoolkit, Docker, K6, Kafka, Sonic Pi.

Cloud Services: DigitalOcean, Amazon Web Services (AWS), Firebase, Google Cloud Platform, GitHub Actions.

AWARDS AND ACHIEVEMENTS

2017 | Ministry of Health of Perú (MINSA) 's Hackathon, Honorable mention **Perú**

- Challenge: Crafting solutions to improve urban health attention requests.
- Proposal: A Geolocation web platform to sort efficiently all emergency requests in real-time.

2016 | Belatrix's Hackathon, Winner **Perú**

- Challenge: Developing solutions using open-source technologies.
- Proposal: An AI algorithm to manage and monitor cattle using Scikit Learn and Tensorflow.

2016 | Hackathon at Sociedad Nacional de Minería, Petróleo y Energía, Honorable mention **Perú**

- Challenge: Crafting solutions for villages near mining extraction plants
- Proposal: An AI algorithm to improve cattle breeding through genetic improvement.

2015 | Hackathon at Universidad de Ingeniería y Tecnología - Winner **Perú**

- Challenge: Generating improvements in education at UTEC.
- Proposal: A project-based learning curriculum where students shape their courses according to their interests and are guided by mentors.

AFFILIATIONS AND ACTIVITIES

06/2019 - 11/2022 | Gathering for Open Science Hardware - Member

07/2019 - 08/2019 | Basic electronics and programming of environmental sensors

Porto Alegre, Brazil

- CTA - Universidade Federale Rio Grande do Sul