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| Federico AlscherCo-Founder || Product Developer & Data Analyst || Biomedical EngineerBuenos Aires City, Argentina, fede.alscher@gmail.com | | |
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| LINKS | <https://ar.linkedin.com/in/federicoalscher/en> | |
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| PROFILE | Biomedical Engineer and co-founder with expertise in developing AI-powered diagnostic systems and real-time signal processing tools. Proven ability to lead interdisciplinary projects from concept to prototype in biomedical and environmental domains. Strong technical skills in embedded programming, physiological modeling, and data analysis, with published research and hands-on results in high-impact applications. | |
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| EMPLOYMENT HISTORY | | |
| May 2024 — Present | Co-Founder || Product Developer & Data Analyst., Quanttrace | Buenos Aires Province, Argentina. |
| Co-founded a startup developing non-invasive, real-time sensing technologies for biomedical and environmental monitoring. Contributed across R&D, systems architecture, and AI-based analytics to bring lab-grade tools into field-ready formats.   * Designed and delivered compact, portable diagnostic devices with integrated sensing, display, and data logging features. * Developed and optimized AI models (neural networks, genetic algorithms) for signal classification and trend detection. * Programmed robust, low-latency data acquisition pipelines using MATLAB, Python, and C/C++, ensuring real-time feedback and reliability. * Accelerated product iteration by implementing modular codebases, automated analysis routines, and rapid prototyping workflows. * Supported strategic decisions through data-driven experimentation and end-user feedback integration.   This role strengthened my ability to deliver end-to-end engineering solutions that translate complex data into actionable insight. | |
| Jul 2024 — Apr 2025 | Project Engineer, Neuroengineering Laboratory (ITECA/ECyT-UNSAM) | Buenos Aires Province, Argentina. |
| Designed and built a fully functional system for automatic detection of myocardial ischemia using ECG signals and AI — integrating signal processing, machine learning, and embedded implementation.   * Trained and validated a custom neural network, achieving high sensitivity and specificity under realistic testing conditions. * Engineered preprocessing pipelines to extract temporal and morphological features from multichannel signals, improving diagnostic reliability. * Converted the trained model to optimized C code for deployment on embedded hardware with live visual and LED feedback. * Evaluated system performance using defined clinical metrics and demonstrated usability in point-of-care scenarios. * Prioritized portability, low power, and intuitive user interface to ensure real-world feasibility.   This project reflects my ability to apply advanced engineering tools to solve clinically relevant problems with real-time constraints — bridging academic rigor with functional, deployable solutions. | |
| Feb 2023 — Jul 2024 | P.E.F.I. Fellow, Neuroengineering Laboratory (ITECA/ECyT-UNSAM) | Buenos Aires Province, Argentina. |
| Joined an interdisciplinary research team to improve and validate an AI-based spike sorting tool for analyzing neural recordings — a collaborative project with FLENI aimed at enhancing surgical planning for movement disorders.   * Enhanced an existing spike classification pipeline using wavelet decomposition and genetic algorithms, increasing accuracy and robustness across datasets. * Collaborated with clinicians at FLENI to adapt the system for intraoperative data, supporting deep brain stimulation (DBS) target validation. * Co-authored a peer-reviewed publication in *Springer Nature’s* “Advances in Neuroengineering” and presented results at the Argentine Congress of Bioengineering (SABI 2023). * Implemented and tested algorithm components in MATLAB and C#, improving data visualization and UI responsiveness across sessions.   This experience strengthened my ability to translate complex physiological data into actionable insights and to work across disciplines in high-stakes clinical contexts. | |
| May 2021 — Present | Administrative Assistant - Ethics Committee, Fundacion CIDEA | City of Buenos Aires, Argentina. |
| Supported the operations of the Institutional Ethics Committee at Fundación CIDEA, a clinical research organization conducting biomedical studies in both public and private sectors. Ensured regulatory compliance, documentation integrity, and coordination with national health authorities.   * Managed submissions, amendments, and approvals for clinical protocols, maintaining structured records in accordance with ethical and legal standards. * Coordinated with researchers and sponsors to ensure timely documentation and transparent communication throughout review cycles. * Liaised with regulatory bodies including ANMAT and the Ministry of Health to facilitate inspections, audits, and procedural alignment. * Drafted and organized meeting minutes and evaluation reports, contributing to procedural clarity and traceability.   This experience developed my organizational precision, familiarity with healthcare regulations, and ability to coordinate stakeholders in complex, compliance-driven environments. | |
| Sep 2023 — Dec 2023 | Medical Technology Field Technician Intern, Austral University Hospital | Buenos Aires Province, Argentina. |
| Completed a professional internship at one of Argentina’s top private hospitals, supporting the Biomedical Engineering Department in the operation, inspection, and maintenance of medical equipment across critical care and outpatient areas.   * Performed routine checks and preventive maintenance under supervision, ensuring compliance with safety and performance standards. * Assisted in diagnosing and resolving technical issues in medical devices, contributing to faster equipment turnaround. * Documented service reports and collaborated with clinical and technical teams to prioritize interventions based on patient care needs. * Gained practical understanding of hospital workflows, equipment regulations, and quality control protocols.   This experience reinforced my ability to apply engineering principles in clinical environments and strengthened my attention to safety, efficiency, and cross-disciplinary communication. | |

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| Aug 2020 — Feb 2023 | Assistant Teaching Fellow in Computer Science, National University of San Martín | | | | General San Martín District, Buenos Aires Province, Argentina. | |
| Provided academic support for an undergraduate course in computer science, assisting in both theoretical instruction and practical coding workshops. Collaborated closely with faculty to enhance learning outcomes in programming fundamentals and algorithmic thinking.   * Guided students through problem-solving sessions in C, reinforcing core concepts in logic, control structures, and data handling. * Reviewed and graded assignments and exams, delivering constructive feedback to support student growth and understanding. * Contributed to the development and refinement of course materials, improving clarity and accessibility for diverse student backgrounds. * Fostered a collaborative, inclusive environment that encouraged critical thinking and active engagement with computational challenges.   This experience deepened my ability to communicate technical material clearly — a skill I regularly apply when working in multidisciplinary engineering teams. | | | | | |
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| EDUCATION | | | | | | |
| Feb 2018 — Apr 2025 | Master-level Degree in Biomedical Engineering, National University of San Martín | | | | Buenos Aires Province, Argentina | |
| * Final project (graded 10/10): *Portable system for automatic myocardial ischemia detection using ECG and neural networks*. * GPA: 8.21 / 10 | | | | | |
| Jan 2017 | High School Diploma in Exact and Natural Sciences, Colegio Esquiú | | | | Buenos Aires City | |
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| TECHINCALSKILLS | Core Programming: MATLAB, Python, C, C++, C#, SQL – used for algorithm development, data modeling, and system optimization.  Machine Learning: Neural networks, genetic algorithms, classification pipelines – trained and deployed in biomedical and environmental systems.  Embedded Systems: Real-time data acquisition and firmware development for sensor-integrated devices using microcontrollers.  Data Analysis: End-to-end processing of complex datasets, feature extraction, time-series modeling, 2D/3D visualization.  Engineering Tools: Visual Studio, Arduino IDE, Simulink – applied across development, validation, and integration workflows. | | | | | |
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| PUBLICATIONS | * Alscher, F. et al, “Algorithm and validation method for spike sorting based on wavelet analysis and a genetic algorithm”, SABI 2023, vol 114, Springer. https://doi.org/10.1007/978-3-031-61973-1\_7 * Wlken, M. et al, “Neurophysiological Analysis of the Posterior Subthalamic Area in a Patient with Holmes' Tremor”, Movement Disorders, 2024. https://doi.org/10.1002/mds.29705 | | | | | |
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| LANGUAGES | Spanish | Native speaker |  | English | | B2 |