

DR SAIMON MORAES SILVA

ISE Division 1: Analytical Electrochemistry

Senior Lecturer in Chemistry | NHMRC Emerging Leadership Fellow
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PROFILE

Analytical electrochemist developing electrochemical sensors and biosensors for reliable measurements in complex samples. Expertise spans antifouling electrode interfaces, molecular recognition, nucleic acid detection and portable instrumentation, with applications in healthcare, environmental monitoring and forensic analysis. Brings research-centre leadership, international conference organisation and hands-on experience in industry collaboration, sensor manufacturing and commercialisation.

ISE ENGAGEMENT AND SCIENTIFIC COMMUNITY LEADERSHIP

- **ISE Division 1 involvement since doctoral studies.** First ISE Annual Meeting: Taipei, Taiwan, 2015. Active engagement with the division and the wider electrochemistry community since then.
- **77th ISE Annual Meeting, Sydney, 2026.** Local Organising Committee member and co-organiser of Symposium 2, “Electrochemical biosensors: The new world technology”, jointly sponsored by Divisions 1 and 2. Hosted the forum “What it Takes to Commercialize Electrochemistry Technology”.
- **Australian Future Sensing Conference.** Co-Chair, 2024; Co-chair, 2026, Melbourne. Brought together researchers and industry working across sensing technologies and their applications.
- **Australasian Electrochemistry Symposium, 2024.** Chair, La Trobe University; convened a meeting attended by more than 150 participants.
- **Homage to Justin Gooding, UNSW Sydney, 2026.** Co-chair of a scientific meeting celebrating contributions to electrochemistry and research mentorship.

APPOINTMENTS AND RESEARCH LEADERSHIP

- **La Trobe University.** Senior Lecturer in Chemistry; NHMRC Emerging Leadership Fellow (2026–2030). Joined as Lecturer in 2023.
- **BEST Research Centre, La Trobe University.** Director (2025–present); Deputy Director (2024). Leads collaborative research and industry engagement in biomedical and environmental sensor technology.
- **ARC Research Hub for Molecular Biosensors at Point-of-Use (MOBIUS).** Chief Investigator and co-Theme Lead, Biosensor Manufacturing.
- **Eolas DX.** Co-founder and CEO; developing portable, smartphone-enabled electrochemical sensing technologies.
- **Earlier research appointments.** Research Fellow, Swinburne University of Technology (2018–2023); Universal Biosensors Fellow (2021–2024); LIMS Industry Fellow, La Trobe University (2024–2025).

EDUCATION

PhD in Chemistry, UNSW Sydney, 2018.
Master in Analytical Chemistry, UFVJM, Brazil, 2013.
Graduate Certificate in Learning and Teaching (Higher Education), Swinburne, 2019.

RESEARCH AND CONTRIBUTIONS

Saimon Moraes Silva | Analytical electrochemistry, biosensing and translation

SELECTED RESEARCH ACHIEVEMENTS

- **Measurements in complex biological samples.** Developed lubricin-based antifouling interfaces for electrochemical detection, including cancer-associated Tn antigen in unprocessed whole blood and clonazepam in saliva.
- **Sensitive nucleic acid analysis.** Co-developed duplex-specific DNase signal amplification for attomolar electrochemical detection of microRNAs, supporting point-of-need cancer diagnostics.
- **Environmental and forensic sensing.** Develops portable electrochemical platforms for PFAS monitoring and drug detection, connecting molecular recognition with practical analytical needs.
- **Translation and manufacturing.** Co-inventor on four PCT patent applications; cancer-sensor technology licensed for commercialisation. Industry experience includes test-strip manufacturing, handheld electrochemical readers and diagnostic validation.

SELECTED RECOGNITION AND FUNDING

2026 | Analyst Emerging Investigator Lectureship, Royal Society of Chemistry.

2024 | Young Electrochemistry Award, Metrohm and RACI Electrochemistry Division.

- **NHMRC Investigator Grant, Emerging Leadership (EL1), 2026–2030.** Lead investigator; approximately AUD 688,000 for a biosensing platform targeting Merkel cell carcinoma.
- **ARC Linkage Project, 2026–2028.** Lead investigator; approximately AUD 445,702 for developing nanostructured electrode surface for dual sensing mode.
- **LIMS Industry Fellowship, 2024–2025.** Lead investigator; AUD 230,000 supporting industry collaboration and sensor-strip prototyping.
- **Universal Biosensors Fellowship, 2021–2024.** Lead investigator; AUD 518,000 supporting electrochemical biosensor development and translation.
- **Victoria–Paraná collaborative grant, 2020–2021.** Lead investigator; AUD 50,000 for point-of-use water-quality sensing with Brazilian collaborators and industry.

SELECTED PUBLICATIONS

1. Pithaih, V.; ...; Abbey, B.; Silva, S. M. Duplex-Specific DNase Signal Amplification Allows Attomolar Electrochemical Detection of MicroRNAs. *Small* (2025), e07997. DOI: 10.1002/sml.202507997.

2. Li, M.; ...; Moulton, S. E.; Silva, S. M. Highly specific lubricin-lectin electrochemical sensor for glycoprotein cancer biomarker detection. *Electrochimica Acta* 457 (2023), 142508. DOI: 10.1016/j.electacta.2023.142508.

3. Silva, S. M.; ...; Moulton, S. E. Rapid Point-of-Care Electrochemical Sensor for the Detection of Cancer Tn Antigen Carbohydrate in Whole Unprocessed Blood. *ACS Sensors* 7 (2022), 3379–3388. DOI: 10.1021/acssensors.2c01460.

4. Russo, M. J.; ...; Greene, G. W.; Silva, S. M. Antifouling Strategies for Electrochemical Biosensing: Mechanisms and Performance toward Point of Care Based Diagnostic Applications. *ACS Sensors* 6 (2021), 1482–1507. DOI: 10.1021/acssensors.1c00390.

MENTORING AND INTERNATIONAL ENGAGEMENT

Supervises doctoral, Masters and Honours researchers and mentors postdoctoral scientists. Builds collaborations across Australia, Brazil and other international partners, including researcher mobility between Paraná and La Trobe University. Engages regional communities and end users in co-designing accessible point-of-need diagnostic tools.