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Raphael Garcia da Costa

Software engineer, inventor and founder. Co-founder & CTO of Sentinel AI and SensusAir. Founder of Hashtag AI Labs. Creator of The Ledger Method.

Short bio 53 words

Raphael Garcia da Costa is a software engineer, inventor and founder who brings the discipline of financial ledgers to environmental data. He is co-founder and CTO of Sentinel AI and SensusAir, founder of Hashtag AI Labs, and named inventor on granted South African patent 2021/10088. He is completing an MSc in Artificial Intelligence.

Medium bio 142 words

Raphael Garcia da Costa is a software engineer, inventor and founder who brings the discipline of financial ledgers to the physical world. He architected the transaction ledger behind a pan-African remittance and wallet platform used by more than 20 million people in 70+ countries, then turned that rigour on dust, air and roads.

He founded Hashtag AI Labs in 2010 and co-founded Sentinel AI (2019), which brings AI to dust, silica and haul-road risk in mining, and SensusAir (2020), which makes indoor air risk visible in hospitals, schools and workplaces. He is named inventor on South African patent 2021/10088 and international filing WO 2020/250007, and the creator of The Ledger Method.

His ventures have received international awards, and he is invited to speak to healthcare, mining and technology audiences. He is completing an MSc in Artificial Intelligence at the University of Hull.

Long bio 381 words

Raphael Garcia da Costa is a software engineer, inventor and founder whose work rests on one question: why are we so rigorous about money, but not about what keeps us alive?

Born in Rio de Janeiro, he wrote his first professional software at the Fundação Oswaldo Cruz (Fiocruz), Brazil's public-health research institution, where he learned that data is evidence and evidence has to be kept intact. In 2010 he founded Hashtag AI Labs, an engineering lab whose clients have included Halliburton, BMW, Barclays and Nike. In 2015 GreenModel®, the universal sub-ledger and cloud financial-reporting platform whose engineering he led, was named a SWIFT Innotribe Semi-Finalist. He went on to architect, from the ground up, the ledger behind a pan-African remittance and wallet platform used by more than 20 million people in 70+ countries: a system where nothing is lost, nothing is overwritten and every entry can be traced.

In 2019 he co-founded Sentinel AI, where he is CTO. Its DustScout technology rides on haul trucks and records dust, silica risk and road condition in real time; Raphael is named inventor on the underlying patent (international filing WO 2020/250007; South African patent 2021/10088, granted 2023). Sentinel AI's work is recognised under South Africa's Section 11D R&D Tax Incentive and the company is a member of the NVIDIA Inception Program. Its partners include Anglo American, Rio Tinto, Fortescue and Whitehaven.

When the pandemic closed the world, he asked why the air in a classroom or a ward had no audit trail. In 2020 he co-founded SensusAir and wrote down The Ledger Method: record every reading, connect it to its context, and let AI reveal the patterns. SensusAir now measures viral, mould and ventilation risk in the USA, South Africa, the UK, Australia and the Philippines, and received the GHP Innovation Excellence Award in 2025.

Raphael has published four white papers on SSRN and presented *When Air Becomes Data* at Healthcare Innovation Summit Africa 2025. He has been invited by APIC, Le Bonheur Children's Hospital, the University of Guelph and St. Luke's Medical Center. He is completing an MSc in Artificial Intelligence at the University of Hull, mentors founders through VC4Africa, the Founder Institute and the National Mentorship Movement, and founded the non-profit AI4DFuture. He lives in Johannesburg and is a father of four.

Name and title

Full name	Raphael Garcia da Costa
Short name	Raphael Costa
Title for programmes	Co-founder & CTO, Sentinel AI and SensusAir · Founder, Hashtag AI Labs
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