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AI-powered Technology Transfer from the SA-CERN Program

The South African participation in the European Laboratory, CERN, coordinated through SA-CERN, has evolved beyond fundamental physics to become a conduit for technology transfer and innovation with far-reaching societal impact. This presentation highlights the role of artificial intelligence (AI) as a driver of technology transfer from SA-CERN into domains of public health, environmental monitoring, and smart infrastructure. Drawing on recent successes such as AI_r, an air quality monitoring system developed with CERN-derived expertise in electronics and data analytics, the presentation illustrates how tools originally created for particle physics are being repurposed for real-time environmental sensing and decision support in South African Departments and Municipalities. We discuss the integration of AI pipelines with sensor networks, the development of edge-based inference systems for low-resource settings, and the data governance frameworks required for ethical deployment.

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