

# PIUS A. OWOLAWI, PHD

Global AI & Business Transformation Executive | Digital Strategy | Industry 4.0 | Enterprise Innovation

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## EXECUTIVE PROFILE

Global technology, AI, and business transformation executive with 20+ years of leadership across artificial intelligence, advanced analytics, engineering innovation, digital platforms, Industry 4.0, smart infrastructure, utilities, higher education, government, and industrial transformation. Proven record translating strategy into executable programs, building enterprise AI capability, leading multidisciplinary teams, and securing R94.2M+ / approximately US\$5.0M in competitive funding for digital innovation, infrastructure, workforce development, and research commercialization. Combines engineering depth, legal and governance training, and AI fluency to identify high-value use cases, redesign processes, establish governance, and drive measurable adoption across complex stakeholder environments.

## EXECUTIVE VALUE PROPOSITION

- AI-enabled transformation leader who can translate enterprise strategy into roadmaps across operations, utilities, supply chain, corporate functions, education systems, technology platforms, and public-sector modernization.
- Deep technical credibility in machine learning, generative AI, computer vision, IoT, robotics, SCADA, cloud, data engineering, augmented reality, automation, and digital platforms.
- Strong executive stakeholder manager with experience partnering with government departments, SETAs, TVET colleges, universities, multinational collaborators, water utilities, and enterprise technology partners.
- Well-positioned to help organizations scale AI use cases such as predictive maintenance, smart infrastructure analytics, water intelligence, quality inspection, intelligent dashboards, digital workforce enablement, and process optimization.

## CORE COMPETENCIES

|                              |                                  |                               |                              |
|------------------------------|----------------------------------|-------------------------------|------------------------------|
| Enterprise Transformation    | AI Strategy & Governance         | Business Process Optimization | Advanced Analytics           |
| Generative AI & ML           | Industry 4.0 / Smart Factory     | SCADA / IoT / Robotics        | Digital Workforce Enablement |
| Transformation Governance    | Executive Stakeholder Management | Cloud & Data Platforms        | Change Leadership            |
| Program Portfolio Leadership | Innovation Commercialization     | Operational Modernization     | Strategic Partnerships       |

## SELECTED BUSINESS IMPACT

- Secured and managed R94.2M+ / approximately US\$5.0M in funded innovation, workforce, infrastructure, and digital transformation programs.
- Lead AI, ML, SCADA, data lab, smart library, ILMS, AR heritage reconstruction, robotics, drone, LMS, e-learning, career hub, smart agriculture, and smart infrastructure initiatives across government, utilities, SETAs, TVET colleges, and universities.
- Established multiple AI, 4IR, drone, emerging technology, networking, radio, renewable energy, and mechatronics laboratories supporting applied innovation and organizational capability building.
- Built and led high-performing multidisciplinary teams including academic leaders, researchers, engineers, postdoctoral fellows, postgraduate researchers, software developers, data scientists, and industry collaborators.
- Developed AI and digital skills programs that enable adoption of new technologies and embed new ways of working across organizations.

## PROFESSIONAL EXPERIENCE

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### **Assistant Dean – Industry Liaison, Special Projects & Work Integrated Learning** | *Tshwane University of Technology* 2025 – Present

- Lead faculty-wide industry partnership strategy, special projects, work-integrated learning, innovation programs, and external stakeholder engagement across ICT disciplines.
- Direct AI-enabled workforce development, digital agriculture, drone training, and skills programs aligned with national and industry transformation priorities.
- Partner with executive, government, industry, and funding stakeholders to convert strategic priorities into funded, executable programs with governance, reporting, and performance outcomes.

### **MICTSETA Research Chair in Fourth Industrial Revolution Skills Development** | *Tshwane University of Technology* 2022 – Present

- Lead a nationally funded 4IR portfolio focused on AI, smart systems, IoT, machine learning, digital platforms, and workforce capability development.
- Directed development of LMS, e-learning, career hub, AI, and digital skills initiatives aligned to enterprise and national digital transformation objectives.
- Established and scaled 4IR laboratory capability spanning AI, ML, IoT, robotics, smart systems, and computer vision.

### **Project Lead – AI & Machine Learning** | *South African Department of Water and Sanitation* Current

- Lead AI and ML initiatives for national water intelligence, including hydrological forecasting, drought monitoring, decision support, data analytics, and AI-enabled operational insight.
- Translate water-sector business and technical requirements into scalable AI architectures, dashboards, cloud data pipelines, governance approaches, and adoption plans.

### **Project Lead – SCADA Design & Development** | *Umgeni Water Treatment Plant* Ongoing

- Lead SCADA design and development for water treatment operations, aligning automation architecture, industrial control requirements, process visibility, and operational intelligence.
- Support integration of industrial automation, PLC/HMI concepts, IoT, cybersecurity-aware design, monitoring dashboards, and digital transformation of critical water infrastructure.

### **Principal Lead Researcher & Electrical Engineer – EEDSM Impact Analysis & Electricity Savings Forecast** | *Department of Electricity and Energy / Pelenstine Technical Solutions* 2025 – 2026

- Serve as Principal Lead Researcher, Electrical Engineer, and Project Leader for the 8-month national EEDSM impact analysis (2019–2024) and electricity savings forecast (2025–2030).
- Lead data collection, data quality analysis, forecasting methodology, stakeholder engagement, project monitoring, and implementation reporting for national energy-efficiency policy and planning.
- Direct evidence-based assessment of electricity savings, demand reduction, monetary savings, GHG emissions reduction, cost-effectiveness, payback periods, ROI, NBEPR/EPC compliance, smart metering, and digital self-assessment priorities.

### **Principal Lead Researcher & Electrical Engineer – Optical Ground Wire / Transmission Fibre Systems** | *Tshwane University of Technology for Eskom RT&D* 2024

- Led Eskom-funded OPGW/WAMS research on MASS fibre deployment for high-voltage transmission networks, evaluating live-line installation potential as an alternative to ageing ADLash fibre infrastructure.

- Directed electrical studies covering earthing, EMC, induced voltages/currents, fault-current behavior, short-circuit impact, insulation/bonding strategy, safety clearances, and electromagnetic-field effects.
- Led mechanical studies on tower structural integrity, loading, conductor swing, sag-tension, wind loading, space-potential checks, and installation guidance for 132 kV, 275 kV, and 400 kV transmission corridors.

**Project Lead – Enterprise Data Lab** | CXI-Africa / CHIETA SETA, South Africa

Ongoing

- Lead design and development of an enterprise Data Lab to support AI, analytics, skills intelligence, research, reporting, and digital transformation capabilities.
- Shape platform architecture across data engineering, cloud deployment, metadata, DevOps, ML experimentation, dashboards, governance, and user enablement.

**Lead Innovation Engineer – AI Integrated University Library System** | Smart Library / Robotics Program

Ongoing

- Lead design of an AI-integrated university library system combining robotics, intelligent search, RFID, automation, computer vision, conversational AI, and digital service innovation.
- Drive architecture and stakeholder alignment for robotic integration with a newly developed library management system.

**Lead Scientist & Engineering Project Lead – Augmented Reality Heritage Reconstruction** | Historical / Ancient Site Reconstruction Program

Ongoing

- Lead AI and augmented reality reconstruction of an ancient historical Marastand site, integrating digital heritage, historical storytelling, 3D reconstruction, computer vision, and immersive visualization.
- Coordinate science, engineering, content, and technology workstreams to convert historical knowledge into an interactive AR experience.

**Project Lead – Integrated Learning Management Systems** | CXI-Africa / Capricorn & Ekurhuleni TVET Colleges

Ongoing

- Lead ILMS design, implementation, and digital transformation programs for TVET colleges, including requirements, governance, user enablement, analytics, cloud/platform planning, and adoption support.

**Research Lead – AI in Agriculture, National AI Institute Collaboration** | Tshwane University of Technology

2023 – Present

- Lead applied AI programs using machine learning, computer vision, UAVs, IoT, and automation to solve operational problems in agriculture, food systems, rural innovation, and enterprise support.
- Identify, prioritize, and prototype AI use cases including crop monitoring, yield prediction, drone-assisted operations, livestock monitoring, and precision-farming analytics.

**Head of Department – Computer Systems Engineering** | Tshwane University of Technology

2017 – 2025

- Provided executive leadership for department strategy, operations, people development, research productivity, program accreditation, curriculum modernization, and industry partnerships.
- Secured and managed R46M+ in funding for WIL, research, laboratory infrastructure, and capacity-building initiatives.
- Established Emerging IIoT and advanced technology laboratories; expanded applied research in embedded systems, AI, robotics, communication networks, and smart infrastructure.

**Head of Department – Electrical Engineering** | Mangosuthu University of Technology

2012 – 2016

- Led engineering department transformation, accreditation readiness, laboratory modernization, stakeholder partnerships, and academic-operational improvement.
- Built collaborations with organizations including Eskom, Transnet, South African Navy, and other industry stakeholders to support engineering capability and innovation.

**Principal Engineering & Procurement Consultant** | Westwood Services (USA)

2016 – Present

- Lead engineering consulting, procurement advisory, and technology solutions for energy, utilities, industrial automation, smart infrastructure, and digital transformation projects.
- Direct engineering feasibility studies, technical evaluations, solution architecture, procurement strategy, vendor selection, contract support, and project delivery for public and private sector clients.
- Advise clients on power systems, transmission and distribution, SCADA, Industrial IoT, AI-enabled engineering solutions, renewable energy, telecommunications, and infrastructure modernization.
- Build strategic partnerships with government agencies, utilities, engineering firms, technology vendors, and international partners to deliver innovative, cost-effective engineering solutions.

**Research and Innovation Consultant** | IntelliAfrica AI Institute and Consulting Services (Pty) Ltd

2026 – Present

- Co-founded an AI research, innovation, and consulting firm specialising in artificial intelligence, digital transformation, digital twins, simulation, intelligent systems, and emerging technologies across government, industry, and academia.

- Lead research and innovation strategy, business development, technology partnerships, AI product commercialization, executive AI governance, workforce capability programs, and responsible AI adoption initiatives.

## SELECTED TRANSFORMATION & AI PROGRAMS

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AI/ML for Department of Water and Sanitation • DEE EEDSM Impact Analysis & Electricity Savings Forecasting • Eskom OPGW/WAMS MASS Fibre Transmission Studies • Umgeni Water SCADA Modernization • CHIETA Data Lab • AI-Integrated Robotic University Library • Augmented Reality Historical Reconstruction • Capricorn TVET ILMS • Ekurhuleni TVET ILMS • LMS National Skills Platform • Career Hub Platform • E-Learning Ecosystem • AI in Agriculture • Smart Factory Monitoring & Predictive Maintenance • AI Chatbot/NLP Systems • Drone Technology Laboratory • IoT-Based Remote Monitoring • Computer Vision Quality Systems • Renewable Energy Optimization • Cloud & Data Engineering Platforms

## EDUCATION

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- LLB, Laws – University of South Africa (UNISA), Final Year / In Progress
- PhD, Electronic Engineering – University of KwaZulu-Natal, South Africa
- MSc, Electronic Engineering – University of KwaZulu-Natal, South Africa
- BTech (Hons), Applied Physics/Electronics – Federal University of Technology, Akure, Nigeria
- Postgraduate Program, AI & Machine Learning – University of Texas at Austin
- Postgraduate Program, Data Science & Business Analytics – University of Texas at Austin
- Postgraduate Program, Cybersecurity – University of Texas at Austin
- Postgraduate Program, Cloud Computing – Great Lakes Institute of Management, India
- Postgraduate Program, Digital Marketing – Great Lakes Institute of Management, India
- Advanced Diploma, Remote Engineering, Mechatronics & Robotics – Engineering Institute of Technology, Australia
- Management Development Programme – University of Stellenbosch Business School, South Africa

## TECHNICAL & EXECUTIVE CERTIFICATIONS

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AI & Machine Learning • Data Science & Business Analytics • Cybersecurity • Cloud Computing • Lean Six Sigma Black Belt • Lean Six Sigma Green Belt • Lean Six Sigma Yellow Belt • Lean Six Sigma White Belt • CCNP • CCNA • MCSE • CWNA • CWSP • Certified Fibre Optic Design Specialist • Certified Fibre Optic Technician • Remote Pilot License • PMP Training • Siemens PLC/HMI Training

## TECHNOLOGY STACK

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Python • TensorFlow • PyTorch • Scikit-learn • Pandas • NumPy • R • MATLAB • Azure • AWS • GCP • Spark • Hadoop • Kafka • Airflow • PostgreSQL • MySQL • MongoDB • Docker • Kubernetes • Git/GitHub • FastAPI • React • Node.js • MLflow • Hugging Face • OpenCV • YOLO • UNet • ROS • Arduino • Raspberry Pi • PLC/HMI • SCADA • AutoCAD • SolidWorks • Minitab • SPSS

## PROFESSIONAL AFFILIATIONS & RECOGNITION

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- Registered Member, Engineering Council of South Africa; Member, IEEE; Member, South African Institute of Electrical Engineers.
  - Recognized among Africa Top 500 Researchers; recipient of multiple senior researcher, teaching excellence, and engineering mentorship awards.
  - Author of 200+ peer-reviewed publications with 2,000+ citations; keynote speaker and international technical reviewer.
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