

Samuel Onuoha

Workflow & Digital Engineering Specialist — AEC & MFG •
USD/Omniverse • BIM/VDC

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📁 portfolio - ifc to usd conversion

Summary

Workflow & Digital Engineering leader with 10+ years delivering large-scale AEC programs (rail, airports, commercial). Expert in BIM/VDC and Digital Twins with hands-on USD/Omniverse workflow research (IFC→USD, federated scenes, geospatial alignment). Strong Python background for automation and data analytics (Databricks/SQL/PowerBI). Adept at translating industry processes into scalable, real-time workflows, enabling customers through training content and actionable product feedback to engineering teams.

Selected Omniverse / Workflow Highlights

- IFC - USD conversion pipelines using Python + ifcopenshell + USD APIs; reusable schemas for attributes and materials.
- Federated USD scene management with variants and payload strategies for scalable loading in Omniverse Composer/Kit.
- Geospatial alignment of BIM models (MGA55/GDA2020) and context streaming via Cesium for survey-accurate visualization of large infrastructure asset base - example: linear rail infrastructure, large airport precinct etc.
- Customer enablement: created internal training material and demo flows; experience gathering workflow requirements and triaging feedback to product/engineering.

Core Skills

Digital Twins: OpenUSD, Omniverse
Composer/Kit, federated workflows

AEC & MFG Apps: Revit, Civil 3D, Navisworks,
Synchro, iTwin/iModel, Autodesk Inventor,
Fusion 360, Salome, etc

Interoperability & Collaboration: PyOCCT,
IFC/ifcopenshell, ACC/Aconex, ArcGIS/QGIS

Engineering & Technical: Mechanical Engineering,
Building Automation and Control (BACnet, LONTalk, KNX)

Project Management & Delivery: Digital Construction Delivery
(BIM/VDC mgmt ISO 19650 IM), asset information mgt and
handover, stakeholder enablement, exec presentations

Technology: Data Analytics & Visualization (Databricks, polars,
pandas, spark, SQL, PowerBI, Tableau), Python, JavaScript.

Experience

Digital Delivery Consultant — Terra Verde Consortium

Jan 2025 – Present • Melbourne

- Advisory across BIM, GIS, and Digital Twin to drive integrated, multi stakeholder digital delivery of the A\$1.7 billion 10km twin tunnel Suburban Rail Loop (SRL) Work Package D scope of works.
- Development oversight of AI assisted forecasting workflows for schedules/resources; improved delivery accuracy by 20%.
- Leading asset data analytics platform aligning digital delivery with lifecycle outcomes.
- Stakeholder and requirements management with a focus on continuous delivery strategies across all project phases, directing deliverable management, compliance, enablement, and technical guidance to achieve targeted outcomes.

Delivery Manager / Digital Engineering Lead — Willow

Aug 2022 – Jul 2024 • Melbourne

- Led the deployment of Willow's Construction Twin SaaS and digital engineering delivery, driving channel growth by addressing key client pain points. Additionally supported proof-of-concept initiatives for the Willow Operational Twin, enabling a rail operator's construction handover pilot.
- Served as Digital Engineering Lead for the Metro Tunnel's Cross Yarra Partnership consortium (CYP), driving multi-disciplinary integration of digital delivery strategies across planning, design, construction, and handover —achieving measurable improvements in compliance, coordination, and asset handover outcomes.
- Enabled cross functional adoption of digital twin practices; produced training and workflow collateral.

Digital Asset Information Manager — Melbourne Airport

Oct 2022 – May 2024 • Melbourne

- Oversaw development of end-to-end (capital planning to implementation) asset information strategy, processes and tools focusing on enabling data-driven asset operations underpinned by information quality, accessibility, and usability to drive improved outcomes for lifecycle asset operations and customer experience.
- Designed digital twin roadmap for airport asset operations; governed IM standards and compliance.
- Developed Azure Databricks pipelines integrating GIS, D365, and BIM data, delivering a 60% boost in data quality visibility that informed targeted improvement initiatives and performance goals.
- Portfolio SME for asset data supporting planning, delivery, and lifecycle operations across the Airport.

VDC Manager — Coleman Rail (Southern Program Alliance)

Mar 2020 – Jun 2022 • Melbourne

- Delivered 4D visual planning to de-risk construction and automate staging plans, achieving a 70% faster turnaround. Pioneered first-of-its-kind workflows integrating reality data (photogrammetry) into Synchro 4D models, enabling more effective staging of linear construction for the Level Crossing Removal Program (LXRP) Southern Program Alliance (SPA).
- Established model based cost planning (Synchro/iTWO CostX/Navisworks); +62% reliability uplift.
- Delivered various continuous improvement initiatives using DMAIC framework, delivering 36% improvement in design/construction coordination, 3D model utilization construction clashes.

BIM Manager / Project Coordinator — AE Smith

Sep 2017 – Mar 2020 • Melbourne

- Led BIM adoption and federated coordination; 40% faster issue resolution, 25% shorter delivery timelines.
- Oversaw digital project collaboration by managing information exchange protocols, model federation, clash detection, issues, and chairing inter-disciplinary coordination meetings, resulting in a 40% improvement in issue resolution turnaround.
- Supported technical engineering, commissioning, and coordination of several notable projects, including Royal Hobart Hospital Redevelopment, Tasmania, VicPolice Building, Melbourne, ATSC Extension Project, Melbourne, MOR Cosmetics, and Park Hyatt Hotel.

MEP Designer — Schneider Electric Buildings

Apr 2016 – Dec 2016 • Perth

- Served as a HVAC/BMS designer across key projects such as: Perth Children's Hospital, Perth Optus Stadium, RAAF Base (Pearce/GinGin)
- Managed asset data through commissioning/handover integrated with operational systems.

Education & Certifications

Grad Cert, Data Analytics — Deakin University (2021)

MSc, Global BIM Management — Zigurat (2018)

Adv. Diploma, Engineering — Challenger (2016)

B.Eng, Mechanical — FUTO (2011)

OpenUSD and Omniverse Learning Paths — NVIDIA DLI

AnyLogic Multimethod Simulation — Digital Twin Analytics (2025)

Primavera P6 — Oracle

Building Automation — KNX & LonMark Certifications
