

Event:

Energy in Buildings Athens Conference 2025

Date:

Saturday November 15, 2025

Place:

Divani Caravel Hotel Athens, Greece



#	Dimitrios Rovas Diploma in Mechanical Engineering, NTUA PhD MIT, USA	
Title:	Professor in Building Simulation and Optimisation The Bartlett School of Environment, Energy and Resources University College London (UCL), UK	
email:	d.rovas@ucl.ac.uk	•
Presentation title:	Building of the Future: Using Digital Building Twins for Data-Smart Operation	
For most buildings, the limiting factor for high-value digital twins isn't the analytics – it's getting the information right. This talk presents a practical, standards-aware pipeline for transforming heterogeneous design-stage data (e.g., IFC/BIM, schematics) into operational knowledge graphs and simulation-ready building energy models (BEM), so that twins can be deployed, trusted, and scaled. We first surface the recurring hurdles: incomplete or inconsistent HVAC topology in authoring models, federated models with uneven quality, and missing second-level space boundaries – issues that derail BIM-to-BEM conversion and downstream operations. We then outline a data-engineering workflow combining Extract-Transform-Load (ETL) tooling, semantic enrichment, and graph validation. The result is automated generation of simulation-ready BEMs – even from imperfect inputs – plus a maintainable operational graph for live building data. We illustrate opportunities in operation – fault detection and diagnostics, control optimisation, and building-to-grid services – using a production digital twin of UCL's One Pool Street, and show how such approaches can unlock portable building analytics. Attendees will leave with (i) a clear view of the information management challenges that matter; (ii) a repeatable data-to-twin pattern—from design artifacts to validated graphs and BEMs, and; (iii) guidance on deploying twins that continuously support operations while generating robust energy models for analysis and control.		
Short CV (EN) :		
Bio: Dimitrios Rovas is Professor of Building Simulation and Optimisation at UCL's Bartlett School of Environment, Energy and Resources. He holds a PhD from MIT and has held posts at University of Paris VI, the University of Illinois at Urbana-Champaign, and Technical University of Crete. His research spans computational energy modelling, smart buildings, and middleware for data integration and processing.		
Short CV (GR) :		
Ο Δημήτριος Ρόβας είναι Καθηγητής Προσομοίωσης και Βελτιστοποίησης Κτιρίων στη Σχολή Bartlett Περιβάλλοντος, Ενέργειας και Πόρων του University College London (UCL). Είναι κάτοχος διδακτορικού από το MIT και στο παρελθόν έχει διατελέσει μέλος ΔΕΠ, στο Πανεπιστήμιο του Ιλινόις στο Urbana-Champaign και στο Πολυτεχνείο Κρήτης. Η έρευνά του εστιάζει στη μαθηματική προσομοίωση ενεργειακής απόδοσης και σε έξυπνα κτίρια. Στο UCL, ίδρυσε και διηύθυνε το μεταπτυχιακό πρόγραμμα MSc in Smart Buildings & Digital Engineering, ενώ είναι συνιδρυτής της Tacit Analytics.		

Event:

Energy in Buildings Athens Conference 2025

Date:

Saturday November 15, 2025

Place:

Divani Caravel Hotel Athens, Greece



CV:

Dimitrios Rovas is Professor of Building Simulation and Optimisation at UCL's Bartlett School of Environment, Energy and Resources, with a PhD in Mechanical Engineering from MIT and an MEng-equivalent Diploma from NTUA. He previously held academic posts at the University of Illinois at Urbana-Champaign, Université Pierre et Marie Curie (Paris VI), and the Technical University of Crete. His work advances digital building twins, data-centric energy modelling, and semantic/linked-data integration, including predictive twin methods and middleware for building analytics and fault detection. He has contributed to major EU projects such as DigiBuild, BuildON, and COGITO, contributing to data quality, operational digital twins and cross-domain integration. His innovations have been showcased at the 2024 European Sustainable Energy Week Energy Fair in Brussels, CeBIT and other international for a. He is past-Chair and Executive Board Member of the European Council on Computing in Construction and served on the Executive Board of IBPSA-England. At UCL, he founded and led the MSc in Smart Buildings & Digital Engineering (2017–2021) and secured CIBSE accreditation for the programme. He is co-founder of Tacit Analytics, a UCL/UCL-B spin-out developing an AI-powered digital-twin platform for machine-interpretable building data and autonomous operational optimisation. He is actively involved in several IEA Annexes including Annex 81 (Data-driven Smart Buildings, Subtask Lead) and Annex 96 (Grid-integrated control of buildings, Activity co-lead).