

Prof. Dr.-Ing. André Borrmann



Position	Full Professor (W3), Chair of Computing in Civil and Building Engineering, Technical University of Munich; Director , TUM Georg Nemetschek Institute - AI for the Built World, Technical University of Munich
Contact	Technical University of Munich, Arcisstraße 21, 80333 Munich, Germany. andre.borrmann@tum.de , www.cce.ed.tum.de/ccbe

Profile

André Borrmann develops artificial intelligence methods for the built environment: multi-agent frameworks built on large language models for generative design, deep learning for point cloud and image interpretation, machine learning for construction process analysis, and, most recently, learned world models and agentic AI for robotized construction. He holds the Chair of Computing in Civil and Building Engineering at the Technical University of Munich and directs the TUM Georg Nemetschek Institute - AI for the Built World, TUM's central institute for artificial intelligence in the built environment. He is spokesperson of the German Research Foundation Research Unit 5672 on the information backbone of robotized construction and originator of the Fabrication Information Modeling (FIM) concept.

Academic Positions

since 2025	Director, TUM Georg Nemetschek Institute - AI for the Built World; Full Professor (W3) for Computing in Civil and Building Engineering, Technical University of Munich
2012 - 2025	Full Professor (W3) for Computational Modeling and Simulation, Technical University of Munich
2011 - 2012	Associate Professor (W2) for Computational Modeling and Simulation, Technical University of Munich
2014 - 2025	Chairman of the TUM Center of Digital Methods for the Built Environment
2021 - 2022	Interim Director of the TUM Georg Nemetschek Institute
2007 - 2011	PostDoc and head of the research group Construction Informatics, Chair of Computation in Engineering, Technical University of Munich

Declined Professorship Offers

2012	Full Professor for Computing in Civil Engineering, University of Hannover
2010	Full Professor for Computing in Civil Engineering, Brandenburg University of Technology

Education

2007	Dr.-Ing. (Ph.D.), Technical University of Munich. Dissertation: Computer Support for Collaborative Construction Engineering by Integration of Interactive Simulations and Spatial Databases. Degree: summa cum laude
2003 - 2007	Ph.D. scholarship, Chair of Construction Informatics, Technical University of Munich
1997 - 2003	Studies in Civil Engineering, focus Construction Informatics, Bauhaus-Universität Weimar, Germany. Diploma degree: very good
2000 - 2001	Visiting student, Department of Computer Science, Universidad Politécnica de Madrid, Spain

Awards and Honors

2026	Thorpe Medal of the European Council of Computing in Construction (coauthor)
2024	Konrad Zuse Medal - the highest German award in computer science and informatics
2022	Smith Prize of the European Council of Computing in Construction
2021	Thorpe Medal of the European Council of Computing in Construction
2016	Charles M. Eastman Top PhD Paper Award , CIB-W78 Conference (coauthor)
2014	Certificate of Excellence in Reviewing, Advanced Engineering Informatics, Elsevier
2008	Special Award in the contest Built on IT of the German Ministry for Economic Affairs
2007	PhD Award of the Technical University of Munich
2008 - 2026	15 best-paper awards at international conferences and journals, among them ICCCB, ECPPM, EG-ICE, CIB-W78, the European Conference on Computing in Construction, eSIM, the ISPRS TC I Mid-term Symposium, and the ASCE Journal of Computing in Civil Engineering (mostly as coauthor)

Research Areas

Artificial intelligence for the built environment (large language models and multi-agent frameworks, deep learning for point clouds and images, machine learning for construction processes, world models and robot learning); Building Information Modeling and Fabrication Information Modeling; geometric modeling and processing; construction process modeling, monitoring and optimization; spatio-temporal query languages; Linked Data; pedestrian dynamics.

Publication Record and Bibliometrics

Publications	117 peer-reviewed journal papers, 332 peer-reviewed conference papers, 41 book chapters, and 4 books (2006 - 2026)
Citations	13,346 in total, 8,925 since 2021 (Google Scholar, 26 July 2026)
Indices	h-index 56, i10-index 228

Five Selected Publications (peer-reviewed journal papers)

- [1] Du, C.; Esser, S.; Nousias, S.; Borrmann, A. (2026): Text2BIM: Generating Building Models Using a Large Language Model-Based Multiagent Framework. *Journal of Computing in Civil Engineering* 40(2), 04025142.
- [2] Mehranfar, M.; Braun, A.; Borrmann, A. (2024): From dense point clouds to semantic digital models: End-to-end AI-based automation procedure for Manhattan-world structures. *Automation in Construction* 162, 105392.
- [3] Pfizner, F.; Braun, A.; Borrmann, A. (2024): From data to knowledge: Construction process analysis through continuous image capturing, object detection, and knowledge graph creation. *Automation in Construction* 164, 105451.

- [4] Wu, J.; Nousias, S.; Borrmann, A. (2025): Design Healing framework for automated code compliance. *Automation in Construction* 171, 106004.
- [5] Du, C.; Deng, Z.; Nousias, S.; Borrmann, A. (2025): Predictive modeling: BIM command recommendation based on large-scale usage logs. *Advanced Engineering Informatics* 68, 103574.

Research Funding

More than 15M Euro raised in more than 30 competitively awarded projects since 2011, funded by the German Research Foundation (DFG), the European Union, German federal ministries, the Bavarian Research Foundation, and industry.

Selected current projects:

2024 - 2028	DFG Research Unit 5672, The information backbone of robotized construction - spokesperson and lead of subproject A, German Research Foundation, 665,000 €
2024 - 2028	AM2PM: Additive to Predictive Manufacturing for Multistorey Construction Using Learning by Printing and Networked Robotics, EU EIC Pathfinder, 400,000 €
2020 - 2028	DFG Transregio 277, Additive Manufacturing in Construction, subproject Co4 on digital design, decision support and digital twin methods, German Research Foundation, 650,000 €
2023 - 2027	PredictiveModeling: AI-based automation of repetitive design steps in BIM modeling, Nemetschek SE, 400,000 €
2024 - 2027	AI4CAD/CAM: AI-based processing of CAD models for automated planning of computer-aided manufacturing, Bavarian Ministry of Economic Affairs, 246,000 €
2021 - 2024	INTREPID: Intelligent Toolkit for Reconnaissance and Assessment in Perilous Incidents, EU Horizon, 485,000 €
2020 - 2023	BIM2TWIN: Optimal Construction Management and Production Control, EU Horizon, 455,000 €
Coordination	Spokesperson, DFG Research Unit 5672 (2024 - 2028); co-spokesperson of two further DFG Research Units (2011 - 2017 and 2017 - 2023); work package leader Digital Twin Platform, EU project BIM2TWIN (2020 - 2024)

Doctoral Supervision

Completed	28 doctorates supervised to completion (2013 - 2025)
Ongoing	15 doctoral researchers under current supervision

Visiting scholars hosted at the chair

among others: Carl Haas (University of Waterloo), Chuck Eastman (Georgia Institute of Technology), Ghang Lee (Yonsei University), Jochen Teizer (Georgia Institute of Technology), Rafael Sacks (Technion), Ioannis Brilakis (University of Cambridge), Arto Kiviniemi (University of Liverpool)

Leadership in Scientific Organizations

2016 - 2021	Chair, German Association for Computing in Civil Engineering (GACCE)
2012 - 2015	Chair, European Group for Intelligent Computing in Engineering (EG-ICE)
Member	International Association for Automation and Robotics in Construction (IAARC); International Council for Research and Innovation in Building and Construction, Working Group 78: IT in Construction (CIB-W78)

Editorial Boards, Standardization and Community Service

Editorial boards	<i>Advanced Engineering Informatics</i> (Elsevier); <i>International Journal of 3-D Information Modeling</i> (IGI Global)
------------------	---

Standardization	Technical lead, ISO 7517 Level of Information Need; buildingSMART International, Infra Room Standards Development; DIN working group NA 005-01-39 and VDI working group 2552, Building Information Modeling
Reviewing	Advanced Engineering Informatics; Journal of Computing in Civil Engineering (ASCE); Automation in Construction; The Computer Journal; International Journal of Geographical Information Science; International Journal of Digital Earth; GeoInformatica; Construction Management and Economics
Committees	Scientific committees of ICCCBE (2008 - 2024), ECPPM (2008 - 2024), EG-ICE (2009 - 2024), CIB-W78 (2008 - 2024), 3D GeoInfo (2010 - 2024), and CONVR (2011 - 2017)

Invited Talks and Keynotes (selection)

2026	AI for the Built World – A rapidly evolving frontier, Keynote, Hanmi Global Project Management Symposium, Seoul, South Korea
2025	AI-based methods in the design, construction and operation of buildings. Keynote, International Conference on Intelligent Computing in Engineering (EG-ICE), Vigo, Spain
2024	AI-based methods in the design, construction and operation of buildings. Invited talk, symposium From hard hats to hard drives: AI reshaping the construction landscape, Yonsei University, Seoul, South Korea
2023	Autonomous Swarms for Infrastructure Construction. Keynote, BIM WORLD, Munich, Germany
2023	AI for the Built Environment: An application-driven perspective. Keynote, BMW Innovation Day, Munich, Germany
2023	AI for the Built Environment: An application-driven perspective. Invited lecture, Eindhoven Artificial Intelligence Systems Institute, Eindhoven University of Technology, Netherlands
2021	Code Compliance Checking based on Visual Programming. Invited talk, Chuck Eastman Symposium, Georgia Institute of Technology, Atlanta, USA
2019	Construction Informatics and Spatial Information Theory: a fruitful symbiosis. Keynote, 14th International Conference on Spatial Information Theory, Regensburg, Germany
2018	Open Standards for BIM-GIS interoperability. Keynote, buildingSMART International Summit, Paris, France