

KASIMIR FORTH

Postdoctoral researcher in construction informatics bridging knowledge representation and neuro-symbolic AI to automate assessments and decision-making for a circular and sustainable built environment

Date of Birth: 16. May 1992
Nationality: Germany, Croatia
E-Mail: kasimir.forth@posteo.de
Website/ LinkedIn: kasimirforth.com / [LinkedIn](#)



EDUCATION

Dr.-Ing.
09.2021 – 12.2024
„Magna cum laude“

TECHNICAL UNIVERSITY OF MUNICH, GERMANY

TUM School of Engineering and Design, Department of Civil and Environmental Engineering
Dissertation: BIM-based Semantic Enrichment for Environmental Analyses Using Large Language Models

Research stay
04.2023 – 06.2023

CHALMERS UNIVERSITY OF TECHNOLOGY, GOTHENBURG, SWEDEN

Visiting researcher, Sustainable Building Research Group, Dr. Alexander Hollberg & Prof. Holger Wallbaum

M.Sc.
10.2015 – 04.2018
GPA: 1.3

TECHNICAL UNIVERSITY OF MUNICH, GERMANY

M.Sc. Energy-efficient and Sustainable Building, Civil, Geo and Environmental Engineering and Architecture
Thesis: BIM-integrated Life-Cycle Assessment (Grade 1.0), Highest GPA (1.3) in the M.Sc. program

Erasmus+ exchange
10.2014 – 02.2015

POLITECHNIKA KRAKOWSKA, POLAND

Faculty of Civil Engineering and the Faculty of Architecture

B.Sc.
10.2011 – 09.2014
GPA: 2.7

TECHNICAL UNIVERSITY OF MUNICH, GERMANY

B.Sc. Engineering Science, Munich School of Engineering
Thesis: Skintecture - Analysis of a Bio-inspired Variable Control of Air and Heat-permeability (Grade: 1.3)

PROFESSIONAL EXPERIENCE

Since 10.2024
cea.ibi.ethz.ch

CHAIR OF CIRCULAR ENGINEERING FOR ARCHITECTURE, ETH ZÜRICH

Postdoctoral researcher

- Publish research in high-impact journals (AUTCON, JBE) and present results at leading conferences (EC3)
- Lead subproject of the SWIRCULAR consortium of academic institutions with industry partners
- Supervise five doctoral candidates and other academic services (track chair, session host, reviewer)

04.2018 – 09.2024
ed.tum.de/loc

LEONHARD OBERMEYER CENTER, TECHNICAL UNIVERSITY OF MUNICH

Managing director

- Manage a research center of 5 professorships with industry (+15 companies), including member acquisition
- Coordinate events, lectures, and strategic research activities for 70+ researchers
- Develop new executive education formats and M.Sc. programs

01.2021 – 09.2024
cee.ed.tum.de/cms

CHAIR OF COMPUTATIONAL MODELING AND SIMULATION, TECHNICAL UNIVERSITY OF MUNICH

Research associate

- Develop research on semantic 3D models (BIM, point clouds) for sustainability assessments using AI
- Acquire and conduct several research projects
- Teach several lectures, seminars and interdisciplinary project and supervise 13 Master's thesis students

Since 06.2018
kasimirforth.com

FREELANCING CONSULTANT IN SUSTAINABLE BUILDINGS AND BIM

- Advise architects and engineers on energy design, green building certifications, and BIM use cases
- Consult on BIM-based LCA and material passports for employer's information requirements
- Deliver sustainability and digitalization expertise across architectural and engineering projects

PROFESSIONAL EXPERIENCE

06.2019 – 12.2020
ed.tum.de/ppe

PROJEKTPLATTFORM ENERGIE + INNOVATION, TECHNICAL UNIVERSITY OF MUNICH

Research associate

- Initiate applied research projects linking universities and the Bavarian construction industry
- Coordinate activities with start-ups, SMEs, and the Center for Digital Technology and Management
- Strengthen innovation capacity of SMEs in digitization and energy transition

05.2018 – 05.2019
arc.ed.tum.de/ari

ARCHITECTURE RESEARCH INCUBATOR, TECHNICAL UNIVERSITY OF MUNICH

Research associate

- Write research proposals (DFG, BMWi) on BIM, AI, and sustainable building design
- Teach the course "BIM and Sustainability" at the Department of Architecture
- Organize interdisciplinary workshops and innovation formats (e.g., Think.Make.Start, Design Thinking)

04.2015 – 04.2018
dreso.com

DREES & SOMMER, ADVANCED BUILDING TECHNOLOGIES

Working student and Masterand in Green Building and Energy Design

- Perform DGNB & LEED certifications, energy checks, and sustainability feasibility analyses
- Conduct daylight and energy simulations, and develop indoor climate and façade concepts
- Selected to the top 10% "Durchstarter" talent program and continued as freelancer after thesis

BOARD ACTIVITIES

Since 03.2025

Cirkla, Member of Board of Directors

02.2024 – 02.2025

IEA BC Annex 91 Open BIM for Energy Efficient Buildings, Participation in workshops and strategic meetings

05.2023 – 04.2025

Runder Tisch GIS e.V., Member of the Advisory Boards

09.2022 – 09.2024

Sustainability task force at TUM, Initiator of a sustainability strategy and guiding the university strategy

06.2020 – 06.2026

Stadtbaustein e.G. München, Chairman of the Supervisory Board of the Housing Cooperative

Since 09.2019

VDI e.V. (Verein Deutscher Ingenieure), Member of standardization VDI 2552 Blatt 11.4 „BIM - Ökobilanzierung“

05.2019 – 10.2022

DGNB e.V. (Deutsche Gesellschaft für Nachhaltiges Bauen), Member and DGNB consultant for building and district certification, expert for Life Cycle Assessment, part of the expert group „Digitization and Sustainability“

11.2018 – 12.2022

buildingSMART e.V., Part of expert group „BIM und Nachhaltigkeit“

10.2015-10.2020

Cradle-to-Cradle e.V., Member and volunteer in the Munich Regional Group and conferences

10.2016 – 09.2017

Buddy-for-Refugee program, Technical University of Munich, Personal support of a refugee at TUM

05.2010 – 09.2010

European Youth Parliament, Participation at the national and international sessions in Germany and Latvia

AWARDS

2025

Hochschulpreis des Bayerischen Bauindustrie, 2nd price (category Circular and Regenerative Building)

2024

Sustainable Industry Impact Award 2024, TUM Institute for LifeLong Learning

2024

Finalist DGNB Sustainability Challenge 2024, DGNB eV. (category Research)

2023

2x open BIM Awards, buildingSmart International (categories Student Research & Sustainability)

2023

BIM Champion 2023, buildingSMART Deutschland (category Sustainability)

2022

Thesis-in-3 competition, 1st place of the EC3 2022 three minute thesis competition

2019

BIM Suhr Preis 2019, 2nd price (category master thesis)

2018

VDI Preis 2018, 1st price (category master thesis)

IT SKILLS

BIM/ 3D software
Programming
Further

Advanced: Autodesk Revit, IFC (IfcOpenShell, Solibri, IFC.js, Blender); Basics: ArchiCAD, Rhino
Advanced: Python, Dynamo, Grasshopper; Basics: CYPHER, SQL
LLM (SBERT fine-tuning), Computer Vision (SAG, YOLO), Graph Neural Networks (GraphSAGE, GAT)

LANGUAGES

Profound
Basics

German (native), **English** (C1), **Croatian** (mother tongue)
French (B1), **Latin** (big latinum), **Turkish** (A2.1), **Greek** (A1), **Italian** (A1), **Polish** (A1)

INVITED TALKS & LECTURES

2026	<i>Von BIM zu digitalen Pässen im Bauwesen: KI als Schlüssel zur Kreislaufwirtschaft</i> , Forum Holzbauforum - Bauphysik & Gebäudetechnik, Friedrichshafen, 29.04.2026
2026	<i>Knowledge representation & reasoning for a circular built environment</i> , Karlsruhe Institute of Technology, Karlsruhe, 05.03.2026
2026	<i>Knowledge representation & reasoning for a sustainable built environment</i> , University of Luxembourg, Luxembourg, 27.01.2026 and 16.06.2026
2025	<i>Connecting digital methods for sustainable building design – using AI for BIM, point clouds and graphs</i> , Architecture and Construction Seminary of five Venezuelan Universities (online), 22.05.2025
2025	<i>Künstliche Intelligenz in der BIM-basierten Ökobilanzierung</i> , BUILT WORLD (online), 07.05.2025
2025	<i>Semantic property enrichment for circularity assessments using graphs</i> , BIM Allianz, 31.01.2025 (online) & RWTH Aachen, 18.02.2025 (Aachen)
2023	<i>Punktwolken-basierte Ökobilanzierung von Sanierungsszenarien</i> , BIM Weeks Bayern, „The future of BIM & Sustainability“, NavVis, Munich, 20.07.2023
2023	<i>BIM-based Life Cycle Assessment</i> , BBSR Workshop with Japanese Delegation, Berlin/ online, 06.07.2023
2023	<i>Modellbasierte Ökobilanzierung</i> , BIM Allianz Workshop AK Nachhaltigkeit, online, 26.05.2023
2020	<i>Digital Methoden der Gebauten Umwelt in Forschung und Lehre</i> , digitalBAU, Köln, 13.02.2020
2019	<i>Nachhaltig bauen – Recyclinghäuser</i> , Salon Festival Munich, 20.09.2019

MODERATIONS & CONFERENCE ORGANISATION

2026	Co-Chair of track „Sustainability & Climate Action“: EC3 conference, Korfu, 12.-15.07.2026
2026	Member of scientific committee: GNI Symposium, Munich, 18.-20.05.2026
2025	Workshop co-organiser & session moderator: SBE25, Zurich, 24.-27.06.2025
2022	Head organiser and session moderator: Forum Bauinformatik, Munich, 07.-09.09.2022
2019	Organiser & moderator: BIM-research@LOC, BIMWeeks Bayern, 08.10.2019
2018-2023	Organiser & moderator: Digital Methods for sustainable buildings and cities, BIM World Munich, 2018-2023

PODCAST INTERVIEWS

2025	AI & BIM for Circular Design and LCA, MaCAD Podcasts by BIM & Smart Construction Theory, 30.05.2025
2023	open BIM und Nachhaltigkeit: buildingSMART Podcast, publication 30.09.2023

RESEARCH PROJECTS & FUNDING ACQUISITION

02/2026 – 03/2026	ETH Zurich Focus Grant - Support of postdoctoral researcher by helping them prepare competitive applications for major early-career funding schemes in form of an intensive 8-weeks grant-writing bootcamp
05/2024 – 04/2026	GE0AI4Retrofit - KI-basiertes Fern-Analyse-Tool zur automatisierten und variantenbasierten Sanierungspotentialbewertung für Nichtwohngebäude, Teilprojekt: „Entwicklung eines Verfahrens zur automatischen Generierung eines semantisch angereicherten 3D-Gebäudemodells zur Best. von Bauteilen und Materialien“, Zentrales Innovationsprogramm Mittelstand (ZIM), Bundesministerium für Wirtschaft und Klimaschutz (BMWK),
11/2022 – 07/2023	PC2LCA - Sanierungspotenziale mithilfe intelligenter Punktwolkenverarbeitung, Stiftung Bayerisches Baugewerbe
09/2021 – 01/2022	ThermoBIM - Untersuchung zur Anbindung von Software der thermischen Gebäudesimulation an Gebäudeinformationsmodelle (BIM), Siemens Corporate Technology
07/2021 – 04/2022	Digital Twin Footprint - Erarbeitung eines ganzheitlichen Meilensteinplans mit Handlungsempfehlungen und notwendigen Forschungsbausteinen zur zielführenden Verknüpfung der Lebenszyklusanalyse (Gebäudeökobilanzierung) und BIM-Planungsprozesse mit einem Fokus auf den frühen Planungsphasen, Bundesinstitut für Bau-, Stadt- und Raumforschung (BBSR)
11/2020 – 10/2023	BIM4EarlyLCA - Entwicklung einer Methode zur ökologischen und ökonomischen Variantenuntersuchung zur Entscheidungsunterstützung in der Beschaffung mithilfe von digitalen Bauwerksmodellen in frühen Phasen, Siemens Real Estate
05/2018 – 09/2024	Leonhard Obermeyer Center - TUM Center of Digital Methods for the Built Environment, in total 1,27 mio. €, research cooperation with industry companies such as Autodesk, Nemetschek, CADFEM, Obermeyer Holding, Hexagon, Bentley Systems, and more

PUBLICATION LIST

Website: <https://kasimirth.com/>
 ORCID: [0000-0001-5786-8757](https://orcid.org/0000-0001-5786-8757)
 Google Scholar: [a7hcbzgAAAAJ](https://scholar.google.com/citations?user=a7hcbzgAAAAJ)
 Scopus: [57211216901](https://scopus.com/authid/detail.url?authorID=57211216901)
 Researchgate: [Kasimir Forth](https://www.researchgate.net/profile/Kasimir-Forth)

JOURNAL PUBLICATIONS

- 2026-a **Forth, K.**; Noichl, F.; Vangelova, S.; Borrmann, A.; De Wolf, C.: *Automation of detailed circularity assessments of existing steel structures based on point clouds*. Advanced Engineering Informatics (Under Review), 2026, DOI: [10.2139/ssrn.7199099](https://doi.org/10.2139/ssrn.7199099)
- 2026-b **Forth, K.**; De Wolf, C.: *Semantic property enrichment for circularity assessments using BIM and labeled property graphs*. Submitted to Journal of Building Engineering 120, 2026, DOI: [10.1016/j.jobe.2026.115417](https://doi.org/10.1016/j.jobe.2026.115417)
- 2026-c Ma, N.; Labib, R.; Amor, R.; Chong, A.; Fan, C.; **Forth, K.**; et al.: *Ten questions concerning large language models (LLMs) for building applications*. Building and Environment, 2026, DOI: [10.1016/j.buildenv.2026.114260](https://doi.org/10.1016/j.buildenv.2026.114260)
- 2026-d Mitropoulou, M.; **Forth, K.**; Vangelova, S.; Menny, T.; De Wolf, C.: *Pre-Demolition Audits as Reuse Resources – Leveraging Large Language Models to Structure, Classify, and Enrich Material Performance Data*. Artificial Intelligence for a Sustainable Built Environment (AISBE), 2026, DOI: 10.1108/AISBE-12-2025-0010
- 2026-e Vangelova, S.; **Forth, K.**; Beetz, J.; De Wolf, C.: *Computational Taxonomy Development for Digital Passports using Semantic Topic Modelling to Advance Circular Construction*. Automation in Construction, 2026 (under review)
- 2024-a **Forth, K.**; Borrmann, A.: *Semantic enrichment for BIM-based Building Energy Performance Simulations using Semantic Textual Similarity and fine-tuning multilingual LLM*. Journal of Building Engineering, 2024, DOI: [10.1016/j.jobe.2024.110312](https://doi.org/10.1016/j.jobe.2024.110312)
- 2023-a **Forth, K.**; Hollberg, A.; Borrmann, A.: *BIM4EarlyLCA: An interactive visualization approach for early design support based on uncertain LCA results using open BIM*. Developments in the Built Environment 16, 2023, 100263; DOI: [10.1016/j.dibe.2023.100263](https://doi.org/10.1016/j.dibe.2023.100263)
- 2023-b **Forth, K.**; Abualdenien, J.; Borrmann, A.: *Calculation of embodied GHG emissions in early building design stages using BIM and NLP-based semantic model healing*, In: Energy and Buildings 284, 2023, 112837; DOI: [10.1016/j.enbuild.2023.112837](https://doi.org/10.1016/j.enbuild.2023.112837)
- 2022-a Selimovic, E.; Noichl, F.; **Forth, K.**; Borrmann, A.: *Retrofitting potential of building envelopes based on semantic surface models derived from point clouds*, In: Journal of Facade Design and Engineering 10 (2), 2022; DOI: [10.47982/jfde.2022.powerskin.8](https://doi.org/10.47982/jfde.2022.powerskin.8)

CONFERENCE PUBLICATIONS

- 2026-a **Forth, K.**; Johanes, M.; de Clermont Tonnerre E.; De Wolf, C.: *Automated generation of disassembly graphs based on detailed 2D section drawings*. EC3 2026, Corfu, Greece, 2026, DOI: [10.35490/EC3.2026.193](https://doi.org/10.35490/EC3.2026.193)
- 2026-b **Forth, K.**; De Wolf, C.: *Predicting connection types using graph neural networks*. Submitted to TUM GNI International Symposium 2026 - Artificial Intelligence for the Built World, Munich, 2026, DOI: [10.14459/2026md1851882](https://doi.org/10.14459/2026md1851882)
- 2026-c Johanes, M.; **Forth, K.**; and De Wolf, C.: *Material segmentation in 2D floor plans for enabling circular inventories under limited and imbalanced data*. TUM GNI International Symposium 2026 - Artificial Intelligence for the Built World, Munich, 2026, DOI: [10.14459/2026md1851865](https://doi.org/10.14459/2026md1851865)
- 2026-d Vangelova, S.; Blum, C.; **Forth, K.**; Hunhevicz, J.; De Wolf, C.: *Graph-based representation of reused building products across projects for facilitating life cycle information tracing*. EC3 2026, Corfu, Greece, 2026, DOI: [10.35490/EC3.2026.206](https://doi.org/10.35490/EC3.2026.206)
- 2026-e Blum, C.; Vangelova, S.; Hunhevicz, J.; **Forth, K.**; De Wolf, C.: *Breakpoints in reuse: mapping failures in material data continuity across logistics and design*. EC3 2026, Corfu, Greece, 2026, DOI: [10.35490/EC3.2026.228](https://doi.org/10.35490/EC3.2026.228)

- 2025-a **Forth, K.;** De Wolf, C.: *Formalizing Disassembly Potential information of buildings using BIM and labeled property graphs*. EC3 2025, Porto, Portugal, 2025, DOI: [10.35490/EC3.2025.197](https://doi.org/10.35490/EC3.2025.197)
- 2025-b Kairlapova, A.; **Forth, K.;** Carrara, A.; Borrmann, A.: *Material detection and classification in 2D architectural drawings using Computer Vision for Material Passports*. EC3 2025, Porto, Portugal, 2025, DOI: [10.35490/EC3.2025.196](https://doi.org/10.35490/EC3.2025.196)
- 2025-c **Forth, K.;** Kaltenegger, J.; Petrova, E.; De Wolf, C.: *BIM-based material property enrichment using textual and semantic similarity matching*. SBE25, Zürich, Switzerland, 2025, DOI: [10.1088/1755-1315/1554/1/012043](https://doi.org/10.1088/1755-1315/1554/1/012043)
- 2025-d Vangelova, S.; **Forth, K.;** De Wolf, C.: *Towards a Scalable Digital Product Passport Data Template for Whole Building Circularity Assessment*. SBE25, Zürich, Switzerland, 2025, DOI: [10.3929/ethz-b-000739400](https://doi.org/10.3929/ethz-b-000739400)
- 2025-e Noichl, F.; **Forth, K.;** De Wolf, C.; Borrmann, A. (2025): *From Point Cloud to Material Passport Automated Creation of Material Passports of Existing Steel Structures based on Point Clouds*. EG-ICE 2025, Edinburgh, UK, DOI: [10.17868/strath.00093257](https://doi.org/10.17868/strath.00093257)
- 2024-a **Forth, K.;** Berggold, P.; Borrmann, A.: *Domain-specific fine-tuning of LLM for material matching of BIM elements and Material Passports*. 2024 ASCE International Conference on Computing in Civil Engineering, Pittsburgh, Pennsylvania, USA, 2024, DOI: [10.1061/9780784486122.064](https://doi.org/10.1061/9780784486122.064)
- 2024-b Wu, J.; Esser, S.; **Forth, K.;** Kairlapova, A.; Gerstner, J.: *Semi-automated assessment in fundamental BIM pedagogy for large cohorts*. 35. Forum Bauinformatik 2024, Hamburg, Germany, 2024, DOI: [10.15480/882.13493](https://doi.org/10.15480/882.13493)
- 2024-c Ogunjinmi, G. J.; **Forth, K.;** Theißen, S.; Borrmann, A.: *Estimating the Circularity of Building Elements using Building Information Modelling*. World Sustainable Built Environment Conference, IOP Conference Series: Earth and Environmental Science 2024, online, DOI: [10.1088/1755-1315/1363/1/012043](https://doi.org/10.1088/1755-1315/1363/1/012043)
- 2023-a **Forth, K.;** Noichl, F.; Borrmann, A.: *LCA Calculation of Retrofitting Scenarios using Geometric Model Reconstruction and Semantic Enrichment of Point Clouds and Images*. Proc. of the ASCE International Conference on Computing in Civil Engineering 2023, Corvallis, Oregon, USA, 2024; DOI: [10.1061/9780784485231.047](https://doi.org/10.1061/9780784485231.047)
- 2023-b **Forth, K.:** *Multilingual semantic enrichment of room-specific load profiles using BIM models for whole building energy simulation*. Proceedings of the 34th Forum Bauinformatik 2023, Bochum Germany, 2023, DOI: [10.13154/294-10093](https://doi.org/10.13154/294-10093)
- 2023-c **Forth, K.;** Hollberg, A.; Borrmann, A.: *Interactive visualization of uncertain embodied GHG emissions for design decision support in early stages using open BIM*. Proc. of the Eighth International Symposium on Life-Cycle Civil Engineering (IALCCE) 2023, Milan, Italy, 2023, DOI: [10.1201/9781003323020](https://doi.org/10.1201/9781003323020)
- 2023-d Hofmeyer, J.; Esser, S.; **Forth, K.;** Borrmann, A.: *Towards environmental design decision-making for infrastructure planning using parametric BIM*. Proc. of the Eighth International Symposium on Life-Cycle Civil Engineering (IALCCE) 2023, Milan, Italy, 2023, DOI: [10.1201/9781003323020-2](https://doi.org/10.1201/9781003323020-2)
- 2022-a **Forth, K.;** Abualdenien, J.; Borrmann, A.: *NLP-based Semantic model healing for calculating embodied carbon in early building design stages*, In: Proceedings of the 14th European Conference on Product and Process Modelling, Trondheim, Norway, 2022, DOI: [10.1201/9781003354222](https://doi.org/10.1201/9781003354222)
- 2022-b Lammers, B.; **Forth, K.:** *IFC-based variant analysis considering multi-criterial sustainability analysis of buildings*, In: Proc. of the Forum Bau Informatik 2022, Munich, Germany, 2022, DOI: [10.14459/2022md1686600](https://doi.org/10.14459/2022md1686600)
- 2022-c **Forth, K.;** Höper, J.; Theißen, S.; Veselka, J.; Borrmann, A.: *Towards life cycle assessment of technical building services in early design phases using Building Information Modeling*, In: Proceedings of the 2022 EC3 2022, Rhodes, Greece, 2022, DOI: [10.35490/EC3.2022.178](https://doi.org/10.35490/EC3.2022.178)
- 2022-d **Forth, K.;** Schneider-Marin, P.; Theißen, S.; Höper, J.; Svane, N.; Borrmann, A.: *Connected design decision networks: multidisciplinary decision support for early building design LCA*, In: Proc. of CESB 2022 conference, Prague, Czech Republic, 2022, DOI: [10.14311/APP.2022.38.0124](https://doi.org/10.14311/APP.2022.38.0124)
- 2022-e Schumacher, R.; Theißen, S.; Höper, J.; Drzymalla, J.; Lambert, M.; Hollberg, A.; **Forth, K.;** Schneider-Marin, P.; Wimmer, R.; Bahlau, S.; Meins-Becker, A.: *Analysis of current practice and future potentials of LCA in a BIM-based design process in Germany*, In: E3S Web of Conferences 349, 10th International Conference on LCM 2021 Stuttgart (online), Germany, 2022, DOI: [10.1051/e3sconf/202234910004](https://doi.org/10.1051/e3sconf/202234910004)

2021-a	Forth, K.; Abualdenien, J.; Borrmann, A.; Fellermann, S.; Schunicht, C.: Design optimization approach comparing multicriterial variants using BIM in early design stages, In: Proc. of 38th International Symposium on Automation and Robotics in Construction (ISARC 2021), Dubai, UAE, 2021, DOI: 10.22260/ISARC2021/0034
2021-b	Kolbeck, L.; Forth, K.: <i>Interoperability of BIM based Life Cycle Energy Analysis in Early Design Stages</i> , In: Proc. of the Forum Bau Informatik 2021, Darmstadt, Germany, 2021
2021-b	Drewes, L.; Forth, K.: <i>BIM-integration of sustainable building certification criteria in the early design stages</i> , In: Proc. of 32. Forum Bauinformatik 2021, Darmstadt, Germany, 2021
2019-a	Forth, K.; Braun, A.; Borrmann, A.: BIM-integrated LCA - model analysis and implementation for practice, In: <i>Sustainable Built Environment D-A-CH Conference 2019</i> , Graz, Austria, 2019, DOI: 10.1088/1755-1315/323/1/012100
2019-b	Molter, P. L., Fellner, J., Forth, K. , Chokhachian, A.: Adaptive Bricks: Potentials of Evaporative Cooling in Brick Building Envelopes to Enhance Urban Microclimate, In: <i>Proc. of PowerSkin Conference</i> , Munich, Germany

BOOK CHAPTERS

2025-a	Höper, J.; Theißen, S.; Forth, K.: <i>BIM basierte Gebäudeökobilanz</i> . In Wimmer, R.; Bartels, N. (Hsg.); : Next Generation BIM. Aus der Praxis für die Lehre. 1. Auflage. Berlin: bSD Verlag - Haus der Bundespressekonferenz / 4103 (BIM Basics). ISBN: 978-3-948742-93-5
2024-a	Collins, F.; Noichl, F.; Pan, Y., Carrara, A.; Mafipour, M.S., Forth, K. , Borrmann A.: <i>Bestandserfassung mithilfe von Computer Vision Methoden</i> . In <i>Künstlichen Intelligenz im Bauwesen</i> , Haghsheno, S., et al. (Hsg.), Springer Nature, 2024, DOI: 10.1007/978-3-658-42796-2_18
2019-a	Forth, K.: Semi-automated processes from BIM to LCA, In: Naboni E, Havinga LC, (Eds) <i>Regenerative design in digital practice: a handbook for the built environment</i> , pp 271-77. Bolzano: EURAC Research; 2019., Bolzano, Italy, ISBN 978-3-9504607-2-8

TEACHING EXPERIENCE

STUDENT TEACHING

FS 2026
HS 2025

WS 2023 – WS 2024
SS 2022 – SS 2024
SS 2021 – WS 2024

2020 – 2022

WS 2018 – WS 2023
SS 2018 – SS 2026
SS 2019

Digital Creativity for Circular Construction: lecture & tutorial „BIM-based Material Passports“
Future-ready Construction & Infrastructure: lecture & tutorial „Data Structuring and enrichment for circular constructions“, Outstanding evaluation by students
ITBE Fusion Lab: Overall concept, coordination and supervision of group works
BIM.advanced: Coordination and group supervision
SoftwareLab: Group supervision „IFC-HBJSON: Converting IFC for Environmental Building Simulation“, Group supervision „Window Fusion 4 BPS“
Creation of a new M.Sc. program: Concept, initial support and application management of „Information Technologies for the Built Environment“, TUM
BIM.project: Concept, coordination, tutorial and supervision in „BIM & Sustainability“
BIM.fundamentals: Concept, coordination, lecture & tutorial „BIM & Sustainability“
Algorithmic Design & Sustainable Architecture: lecture & tutorial

EXECUTIVE EDUCATION

Since 2023
2020 – 2024
2018 – 2024

Nachhaltiges Planen mit BIM: general concept and four block lectures (1 full day), VDI Wissensforum
Digital Twins für Städte: general concept and management, TUM Institute for LifeLong Learning
BIM Professional: general concept, support and management, lecture „BIM & Sustainability“, continuous development towards bS International accreditation (bS Basic Foundation & bS Practitioner „open BIM Management“/ „open BIM coordination“), TUM Institute for LifeLong Learning

SUPERVISED THESES

2026
2026
2025

2025

2024

2024

2024

2023

2023
2022

2022

2022
2022

2021

2021

2021
2020

2020

Silvia Dimitrova, *Interactive visualisation of digital building passports in 3D element graphs*, Master project
Elvire de Clermont Tonnerre, *Disassembly graph extraction from 2D technical drawings*, Master project
Leisi Jeffrey, *Automating Scan-to-BIM for Telecom Site Planning - A Comparative Analysis and Case Study*, Bachelor thesis
Hannah Kovacs, *Development of SwissInv, a digital inventory tool for existing buildings in Switzerland*, Master project
Abdellah Nait-Taour, *Enhancing Building Energy Performance Simulation by automating BIM to BEM Integration and reducing Building Complexity*, Master thesis
Ainur Kairlapova, *Material detection and classification in 2D architectural drawings using computer vision for Material Passports*, Master thesis
Maxim Khochinskii, *Automated calculation of as-planned environmental impacts from construction activities using BIM-based construction schedule*, Master thesis
Viet Cuong Dao, *Parametric Building Energy Performance Simulation with Sensitivity Analysis Using BIM Models in Early Design Stages*, Master thesis
Al-Amin Salman Ibrahim, *Toward BIM-based ESG Assessment*, Master thesis
Baris Omer Balota, *Change Selection and Feedback Communication of Design Variant Decision Using BIM*, Master thesis
Jana Hofmeyer, *Evaluating environmental impacts of road routing alternatives using Building Information Modeling*, Master thesis
Gbenga John Ogunjinmi, *Estimating Circularity of Building Elements Using BIM*, Master thesis
Edina Selimovic, *Sanierungspotential von Bestandsgebäuden mithilfe automatisierter geometrischer Rekonstruktion und semantischer Anreicherung aus Punktwolken*, Master thesis, 2. Platz des BMWi-Wettbewerbs „Auf IT gebaut“ (Bauingenieurwesen)
Florian Fischer, *Bewertungsmethodik zur modellbasierten Lebenszyklusbetrachtung der Technischen Gebäudeausrüstung in frühen Phasen anhand der Raumluftechnischen Anlagen (KG 430)*, Master thesis
Benjamin Lammers, *IFC-based variant analysis considering multicriterial sustainability analysis of buildings*, Master thesis
Yue Xia, *Automated Methods of Mapping LCA Data to BIM Models*, Master thesis
Lena Drewes, *BIM-integration of sustainable building certification criteria in the early design stages*, Master thesis, 2. Preis des Europa-Center Suhr BIM Preises 2020/2022 Kategorie „Master“
Lothar Kolbeck, *Interoperability of BIM-based Life-Cycle Energy Analysis in Early Design Stages*, M. thesis