

Curriculum Vitæ - Josef Kiendl

Personal data and contact information

Born: December 16, 1980 in Deggendorf, Germany
Address: University of the Bundeswehr Munich,
Department of Civil Engineering and Environmental Sciences
Institute of Engineering Mechanics and Structural Analysis
Werner-Heisenberg-Weg 39, 85577 Neubiberg, Germany
Phone: +49 (0)89 6004 3281
E-mail: josef.kiendl@unibw.de
Web : <https://www.unibw.de/mechanik-und-statik/baustatik/team-baustatik/josef-kiendl>

Education and Academic Positions

since 2020 Full professor at the Institute of Engineering Mechanics Structural Analysis, Department of Civil Engineering and Environmental Sciences, Bundeswehr University Munich
since 2020 Adjunct Associate Professor at the Department of Marine Technology, NTNU Trondheim
2016-2019 Associate Professor (Onsager fellowship) at the Department of Marine Technology, NTNU Trondheim
2015-2016 Assistant Professor (Juniorprofessor) at the Institute for Applied Mechanics, Department of Civil Engineering, TU Braunschweig
2012-2015 Postdoctoral Researcher at the Department of Civil Engineering and Architecture, Computational Mechanics and Advanced Materials Group, University of Pavia, Italy
2011 PhD with highest distinction (summa cum laude). Thesis: *Isogeometric Analysis and Shape Optimization of Shell Structures*, TU Munich, Germany
2007-2011 PhD student of the *International Graduate School of Science and Engineering* (IGS-SE), at the Chair of Structural Analysis, TU Munich, Germany
2005 Master's Degree
2000-2005 Student of civil engineering at TU Munich, Germany

Non-academic professional experience

2011 Project manager at DrillTec GmbH for the Poland Shale Gas drilling project, Malbork, Poland
2005-2007 Project engineer at Max Streicher GmbH for the Adriatic LNG pipeline project in Porto Viro, Italy

Research stays abroad

- 2022 Invited visiting professor (4 weeks) at University of Calabria, Italy
- 2014 Visiting scholar (2 weeks) at Prof. Hughes, ICES, University of Texas at Austin
- 2013 Visiting scholar (1 month) at Prof. Hughes, ICES, University of Texas at Austin
- 2010 Visiting scholar (1 month) at Prof. Bazilevs, Department of Structural Engineering, University of California, San Diego (UCSD)
- 2009 Visiting scholar (2 months) at Prof. Bazilevs, Department of Structural Engineering, University of California, San Diego (UCSD)

Awards

- 2019 *ERC Consolidator grant*
- 2017 *Highly Cited Researcher* according to Clarivate Web of Science
- 2016-2019 *Onsager Fellowship* of NTNU, awarded to young, internationally recognized researchers to strengthen the university's academic community.
- 2016 *Richard-von-Mises Prize*, awarded by the International Association of Applied Mathematics and Mechanics (GAMM) in acknowledgment of scientific achievement in the area of applied mathematics and mechanics.
- 2013 *GAMM Award 2013* for organizing a Young Researcher Minisymposium at the 84th Annual Meeting of the International Association of Applied Mathematics and Mechanics (GAMM)
- 2011 *PhD Dissertation Award* of the Association of Friends of the Technical University of Munich to the six best PhD dissertations at TU Munich in 2011
- 2007-2011 *PhD stipend* of the International Graduate School of Science and Engineering (IGSSE) at TU Munich

Publications and citations

- 53 papers in peer-reviewed international journals, a detailed list is found attached
- 5136 citations, h-index 31 according to *Google Scholar*
- 3666 citations, h-index 28 according to *Scopus*
- 3265 citations, h-index 26 according to *Web of Science*

Research projects and third-party funding

- 2020-2025 ERC Consolidator Grant of the European Research Council: *Structural multiscale modelling of extrusion-based 3D and 4D printed materials*. Funding: €2,000,000. Role: Project manager
- 2020-2024 DTEC-FLAB3D: *Research laboratory for additive manufacturing*. Funding: €10,000,000. Role: Leader of one work package

- 2018-2019 NTNU-internal call for funding research projects: *3D printing of bio-inspired architected materials*. Funding: NOK 2,330,000 (€240,000) Role: Project manager
- 2017-2020 Knowledge-Building Project for Industry of the Norwegian Research Council (NRC): *Flexible propulsors for marine applications*. Partners: Sintef Ocean, Rolls Royce Marine. Funding: NOK 16,550,000 (€1,700,000) Role: Leader of one work package, supervisor for one PhD student
- 2019-2020 Mobility grant of the German Academic Exchange Service (DAAD) and Norwegian Research Council (NRC): *Spline-based Methods for Fluid-Structure Interaction in liquid storage tanks under seismic loading*. Sum: €20.700 Euro. Role: Project manager Norwegian side
- 2018-2019 Mobility grant of the German Academic Exchange Service (DAAD) and Norwegian Research Council (NRC): *Isogeometric phase-field modeling of fatigue in slender structures*. Sum: €18.500 Euro. Role: Project manager Norwegian side
- 2018 Funding by the Norwegian Shipowners Association for financing a FDM 3D-printer. Sum: NOK 30,000 (€3,100). Role: Project manager

Conference contributions

- 1 Plenary lecture, at the ECCOMAS thematic conference IGA 2019
 - 2 Semiplenary lectures, one at the ECCOMAS congress 2022
 - 4 Keynote lectures
 - 35 Contributions as first author, of which 25 invited
 - 47 Contributions as coauthor
- A detailed list is found in the attached list of conferences

Invited talks at seminars and workshops

- 2022 Seminar at the University of Calabria, Rende, Italy
- 2022 Seminar at the Fraunhofer Ernst-Mach-Institut (EMI), Freiburg, Germany
- 2019 Lecture for the *EU regional school* at Aachen Institute for Advanced Study in Computational Engineering Science (AICES), RWTH Aachen University, Aachen, Germany
- 2018 Presentation at the first KSCM-GACM Joint Workshop, Seoul, South Korea
- 2018 Seminar at the Chair of Numerical Modelling and Simulation of EPFL Lausanne, Switzerland
- 2018 Seminar at the Aachen Institute for Advanced Study in Computational Engineering Science (AICES), RWTH Aachen University, Aachen, Germany

- 2017 Seminar at the Digital Manufacturing and Design (DManD) Centre, Singapore University of Technology and Design (SUTD), Singapore
- 2017 Seminar at the Centre for Advanced Structural Analysis (CASA), NTNU Trondheim, Norway
- 2017 Seminar at the Department of Civil Engineering and Architecture, University of Pavia, Italy
- 2017 Seminar at the Aachen Institute for Advanced Study in Computational Engineering Science (AICES), RWTH Aachen University, Aachen, Germany (*declined due to illness*)
- 2014 Seminar at the Department of Civil Engineering and Architecture of Aalto University, Espoo, Finland
- 2014 Seminar at the Aerospace Engineering Department of Iowa State University, Ames, USA
- 2013 Seminar at the International School of Advanced Studies (SISSA), Trieste, Italy
- 2012 Lecture at the Summer School *IsoGeometric Analysis: a New Paradigm in the Numerical Approximation of PDEs* of the International Mathematical Summer Center (CIME), Cetraro, Italy
- 2011 Lecture for the *Seminar of the Department of Structural Mechanics*, TU Kaiserslautern, Germany
- 2010 Presentation at *FE im Schnee*, Hirschegg, Austria:
- 2009 Presentation at the *International Workshop on Environment and Alternative Energy (organized by NASA, G3P, and GE)*, Munich, Germany
- 2009 Presentation at the *First International Workshop on Computational Engineering - Special Topic Fluid-Structure-Interaction*, Herrsching, Germany
- 2009 Presentation at the *International Workshop, Technology and Society*, Weimar, Germany

Organization of congresses and symposia

- 2022 Minisymposium *IGA for Solids and Structures* within the 10th International Conference on Isogeometric Analysis, Banff, Canada
- 2022 Minisymposium *Non-material modelling of axially moving continua: Arbitrary Lagrangian-Eulerian description in structural mechanics*, within WCCM-APCOM 2022: the joint 15th World Congress on Computational Mechanics and 8th Asian Pacific Congress on Computational Mechanics, Yokohama, Japan
- 2022 Minisymposium *Nonlinear mechanics of beam, plate, membrane and shell structures: models and methods*, within ICoNSoM 2022: International Conference on Nonlinear Solid Mechanics, Sardinia, Italy

- 2021 Minisymposium *Solids and Structures* within VIGA2021: Virtual International Conference on Isogeometric Analysis, Lyon, France
- 2020 Minisymposium *IGA for Solids and Structures* within the USACM thematic conference on Isogeometric Analysis, Banff, Canada
- 2020 Minisymposium *Computational analysis and methods for solids, structures, and metamaterials within generalized continua*, within the joint 14th World Congress in Computational Mechanics and ECCOMAS Congress, Paris, France
- 2019 Minisymposium *Collocation*, within the 7th International Conference on Isogeometric Analysis, Munich, Germany
- 2019 Minisymposium *Novel Formulations and Discretization Methods for Thin-walled Structures*, within the 8th GACM Colloquium on Computational Mechanics, Kassel, Germany
- 2019 Minisymposium *Complex Structures and Microarchitectures of Metamaterials*, within the International Conference on Nonlinear Solid Mechanics, Rome, Italy
- 2018 Minisymposium *Solids and Structures* within the USACM thematic conference IGA 2018: Integrating Design and Analysis, Austin TX, USA
- 2018 Minisymposium *Computational analysis and methods for solids and structures within generalized continua*, within the 6th European Conference on Computational Mechanics, Glasgow, United Kingdom
- 2017 Minisymposium *Non-standard Formulations and Discretization Methods for Thin-walled Structures*, within the 7th GACM Colloquium on Computational Mechanics, Stuttgart, Germany
- 2017 Thematic Session *IGA of solids and structures*, within the ECCOMAS Thematic Conference on Isogeometric Analysis, Pavia, Italy
- 2016 Thematic Session *IGA and Meshfree methods for thin structures*, within the USACM Thematic Conference on Isogeometric Analysis and Meshfree Methods, La Jolla, USA
- 2015 Minisymposium *Isogeometric Methods for Structural Mechanics*, within the joint conference 3rd ECCOMAS Young Investigators Conference (YIC) and 6th GACM Colloquium on Computational Mechanics, Aachen, Germany
- 2014 Minisymposium *Isogeometric Methods*, within the conference WCCM 2014 - World Congress on Computational Mechanics, Barcelona, Spain
- 2013 Minisymposium *Advanced Methods for Computational Mechanics: Beyond Classical Finite Elements*, within the 21st Congress of the Italian Association of Theoretical and Applied Mechanics (AIMETA), Turin, Italy

2013 Young Researcher Minisymposium *Isogeometric Methods*, within the 84th Annual Meeting of the International Association of Applied Mathematics and Mechanics (GAMM), Novi Sad, Serbia

Participation in congress scientific boards

2022 USACM Thematic Conference on Isogeometric Analysis, Banff, Canada
2021 VIGA2021: Virtual International Conference on Isogeometric Analysis, Lyon, France
2019 International Conference on Isogeometric Analysis, Munich, Germany
2018 USACM Thematic Conference on Isogeometric Analysis, Austin (TX), USA
2017 ECCOMAS Thematic Conference on Isogeometric Analysis, Pavia, Italy
2016 USACM Thematic Conference on Isogeometric Analysis and Meshfree Methods, San Diego, USA

Member of Journal Editorial Boards

since 2022 Frontiers Materials
since 2021 Modelling
since 2018 Material Design & Processing Communications

Reviewer for international journals

- Computer Methods in Applied Mechanics and Engineering
- Proceedings of the National Academy of Sciences of the United States of America
- Proceedings of the Royal Society B
- Archives of Computational Methods in Engineering
- Computational Mechanics
- International Journal for Numerical Methods in Engineering
- Computer-Aided Design
- Computers and Mathematics with Applications
- Biomechanics and Modeling in Mechanobiology
- Computers and Structures
- Marine Structures
- Fatigue & Fracture of Engineering Materials & Structures
- Engineering Structures
- Applied Mathematical Modelling
- European Journal of Mechanics - A/Solids
- Finite Elements in Analysis and Design
- Computer Aided Geometric Design
- Mechanics Research Communications
- Journal of Mechanics of Materials and Structures

- International Journal of Architectural Heritage
- Part C: Journal of Mechanical Engineering Science
- Engineering Computations
- Journal of Manufacturing Science and Engineering
- Journal of Theoretical and Applied Mechanics
- Mechanics Based Design of Structures and Machines
- Acta Mechanica
- Meccanica
- Engineering with Computers
- Biomedical Engineering/Biomedizinische Technik
- Journal of Materials Research and Technology

Reviewer for international research funding agencies

- German Science Foundation (DFG)
- Austrian Science Fund (FWF)
- European Science Foundation (ESF)
- European Energy Research Alliance (EERA)
- Netherlands Organisation for Scientific Research (NWO)
- Swedish Research Council (SRC)
- Italian Ministry of Public Education (MIUR)
- Research Grant Council (RGC) of Hongkong

Reviewer in PhD and Habilitation committees

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| 2020 | Habilitation thesis on <i>Multifield Modelling in Computational Mechanics</i> , University of Innsbruck, Austria |
| 2020 | PhD thesis on <i>CAD-integrated Isogeometric Analysis and Design of Lightweight Structures</i> , TU Munich, Germany |
| 2019 | PhD thesis on <i>Isogeometric Modeling for the Optimal Design of Aerostructures</i> , INSA Lyon, France |
| 2017 | PhD thesis on <i>Phase-field modeling and computations of brittle and ductile fracture for solids and shells</i> , TU Braunschweig, Germany |
| 2017 | PhD thesis on <i>Isogeometric mortar methods with applications in contact mechanics</i> , University of Pavia, Italy |
| 2016 | PhD thesis on <i>CAD-Integrated Design and Analysis of Shell Structures</i> , TU Munich, Germany |

Chair of PhD committees

- 2022 PhD thesis on *Investigations on the impact of metaphyllosilicates and calcined common clays on the rheology and early hydration of cements admixed with different superplasticizers*, UniBw Munich, Germany
- 2022 PhD thesis on *Modeling and experimental-numerical investigations on damage and failure of ductile metals*, UniBw Munich, Germany
- 2020 PhD thesis on *Biaxial experiments and numerical simulations with newly developed specimens for the prediction of damage and failure of ductile metals*, UniBw Munich, Germany
- 2020 PhD thesis on *Experimental and numerical investigations of the explosion-retardant effect of hedge plants*, UniBw Munich, Germany
- 2020 PhD thesis on *Bending behavior of fiber reinforced plastic pipes with multi-row bolt connections*, UniBw Munich, Germany
- 2019 PhD thesis on *Structural Control of Offshore Wind Turbines – Increasing the role of control design in offshore wind farm development*, NTNU Trondheim, Norway

Teaching experience

- since 2021 Lecturer for *Finite Element Analysis in Construction Engineering*, UniBw Munich (in German)
- since 2020 Lecturer for *Structural Analysis*, UniBw Munich (in German)
- since 2020 Lecturer for *Nonlinear Structural Analysis*, UniBw Munich (in German)
- 2017-2019 Lecturer for *Finite Element Methods for Structural Analysis*, NTNU Trondheim (in English)
- 2017-2019 Lecturer for *Marine Structures, Specialization Project*, NTNU Trondheim (in English)
- 2016 Lecturer for *Isogeometric Methods*, TU Braunschweig (in English)
- 2015-2016 Lecturer for *Numerical Methods in Engineering*, TU Braunschweig (in German)
- 2012-2015 Teaching assistant for *Mechanics of Solids and Structures*, University of Pavia (in Italian)
- 2009-2010 Teaching assistant for *Modeling and Simulation*, TU Munich (in English)
- 2008-2010 Teaching assistant for *Advanced Finite Element Methods*, TU Munich (in English)
- 2008-2009 Teaching assistant for *Finite Element Methods*, TU Munich (in English)
- 2002-2004 Tutor for *Mechanics of Solids and Structures*, TU Munich (in German)

Teaching training courses

- 2018 PEDUP: NTNU's Educational Program for New Academic Staff (seminar spanning two semesters, in total 100 hours)
- 2016 CDIO Workshop *The Teaching Trick* held at NTNU Trondheim

Supervision of PhD students and Postdocs

- currently Main supervisor of 9 PhD students and 4 Postdocs at UniBw and NTNU
- 2016-2021 Main supervisor of PhD thesis on *Isogeometric methods for modeling fracture and fatigue in plates and shells* at NTNU
- 2015-2017 Co-supervision of PhD thesis on *Phase-field models for brittle and ductile fracture in solids and structures* at TU Braunschweig
- 2013-2016 Co-supervision of PhD thesis on *Isogeometric methods for structural applications* at University of Pavia

Supervision of Master's and Bachelor's theses

- 2021 Bachelor's thesis *Applying concepts of artificial intelligence to structural mechanics problems with a focus on neural networks*
- 2021 Bachelor's thesis *3D-printed boat propellers: Fabrication and suitability of different materials in practical tests*
- 2021 Bachelor's thesis *3D-printing of beams with inhomogeneous cross sections for controlling the load-carrying behavior*
- 2021 Bachelor's thesis *Experimental investigation on the impact of different printing parameters on the macroscopic material parameters of 3D-printed specimens*
- 2019 Master's thesis *An isogeometric digital twin for the research vessel Gunnerus*
- 2019 Master's thesis *Isogeometric contact analysis*
- 2018 Master's thesis *Isogeometric structural analysis of wind turbine blades*
- 2018 Master's thesis *Isogeometric analysis of thin structures with trimmed geometries*
- 2016 Co-supervision of Master's thesis on *Numerical stability analysis of thin-walled cylindrical shells*
- 2016 Co-supervision of Bachelor's thesis on *Engineering mechanics - Experiment and simulation*
- 2010 Master's thesis *Isogeometric Analysis with CARAT++, awarded with the "Johannes B. Ortner Award"*
- 2010 Bachelor's thesis *Analysis of ceiling panels with isogeometric finite elements*
- 2009 Master's thesis *Development and Implementation of a Rhino Preprocessor for the Integration of CAD and isogeometric analysis*
- 2009 Bachelor's thesis *Geometric description of free-form surfaces*

2008-2010 Various student (group) projects with topics from *Computational Mechanics*, *Isogeometric Analysis* and *Geometric Modeling*

Affiliations

- International Association for Applied Mathematics and Mechanics (GAMM)
- German Association for Computational Mechanics (GACM)

Language skills

- German (native)
- English (excellent)
- Italian (excellent)
- Norwegian (intermediate)
- French (basic)