- RHINO USER MEETING ZURICH -
December 7ᵗʰ, 2023

design
to
production

13.30   **OPEN DOORS**

NEWS FROM BARCELONA, AN UPDATE FROM THE RHINO TEAM

14.00 - 14.30   Carlos Pérez, Mc Neel

DESIGN TO PRODUCTION, FREE FORM TIMBER AND MUCH MORE

Evy Slabbinck, Design-to-Production

SESSION 1 - HEADLESS RHINOS

MOVING RHINO WHERE YOU NEED IT: RHINO INSIDE

Pedro Cortes, Mc Neel

API'S IN CADWORK : THE BRIDGE BETWEEN CAD AND OTHER APPLICATIONS

Michael Brunner, Cadwork

RHINO 3DM AS GEOMETRY KERNEL FOR STAND ALONE & WEB APPLICATIONS

Hanno Stehling, Design-to-Production

FROM CONSTRUCTION TO PRODUCTION WITH PARAMETRIC WEBTOOLS

14.30 - 16.15   Felix Brunold, VektorNode

MULTI-USER RHINO WITH CRASH

Lukas Fuhrimann, StructureCraft

PACKHUNT, BUILDING ADVANCED DIGITAL SOLUTIONS WITHOUT THE HASSLE

Jeroen Coenders, Packhunt

FROM CAD PLUGIN TO WEB FRONTEND : TURF DESIGN TOOL

Daniel Christev, Design-to-Production

WOOD SYSTEMS BY PAZ ACADEMY

Nora Bukovits & Andrés Velasco Muro, Parametric Academy Zurich

16.15 - 16.45

PANEL DISCUSSION

PAUSE CAFÉ

SESSION 2 - RHINOS IN THE WOODS

INTEGRATED DESIGN-TO-MANUFACTURING WORKFLOW IN MODULAR TIMBER CONSTRUCTION

Edyta Augustynowicz, Bern Fach Hochschule

BOOSTING REAL ESTATE PRODUCTS: PARAMETRIC CONFIGURATOR FOR TIMBER MODULAR SOLUTIONS

Giulia Curletto, Implenia

HOW TO GET THERE - THE 'WISDOME STOCKHOLM' STRUCTURAL MODEL

Stefan Rick, SJB Kempter Fitze

16.45 - 19.00

FROM (DATA) TREES TO (MACHINED) TREES

Ursula Frick, Blumer-Lehmann

RHINO IMPULSES FOR TIMBER CONSTRUCTION

Hermann Blumer, Création Holz

FROM POINT CLOUD TO PRODUCTION: USING RHINO AS A TOOL

Adrian Scherrer, Treppenbau.ch

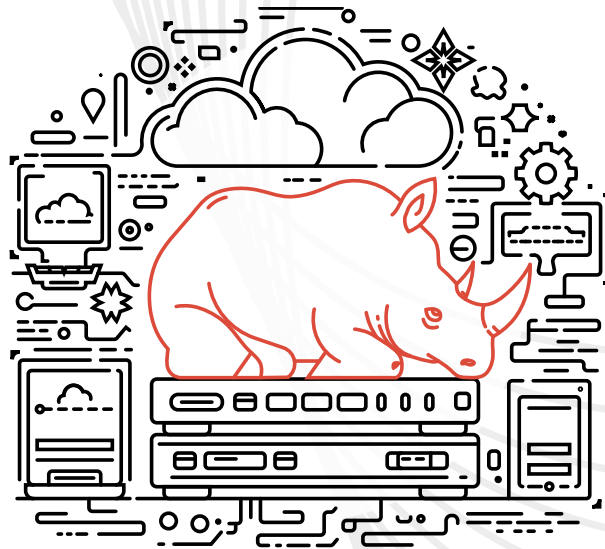**SPEARHEAD RHINO/CADWORK FABRICATION TOOLS**

Fabien Peterman, Spearhead

BRIDGING THE GAP BETWEEN DESIGN AND PRODUCTION

Martin Pfundt & Moritz Niebler, Design-to-Production

19.15 - 21.00

PANEL DISCUSSION

APÉRO

Design-to-Production, Seestrasse 78 - Erlenbach 8703

SESSION 1 - HEADLESS RHINOS

Rhino.Inside, Rhino.Compute, Rhino.3dm and more allow users to access Rhino's functionalities without its graphical user interface. The first session of the event will focus on practical use cases and clever solutions to leverage the power of these "Headless Rhino" from the web, stand alone apps or within different CAD softwares.

1.1. MOVING RHINO WHERE YOU NEED IT: RHINO INSIDE
Pedro Cortes, Mc Neel

15'

Delve into the dynamic realm of Rhino.Inside, a groundbreaking technology that empowers Rhino to seamlessly integrate and operate within other design and modeling applications. With a focus on headless solutions, the session explores how Rhino.Inside revolutionizes design workflows, fostering interoperability between diverse software ecosystems. Attendees will gain insights into the fundamentals of Rhino.Inside, its manifold use cases, advantages, and its pivotal role in scripting, automation, and real-world projects. By showcasing practical examples, challenges, and future trends, this presentation offers a comprehensive view of how Rhino.Inside is shaping the future of 3D modeling and design integration, making it a must-see for experts in headless solutions for Rhino.

1.2. API'S IN CADWORK : THE BRIDGE BETWEEN CAD AND OTHER APPLICATIONS
Michael Brunner, Cadwork

10'

Discover how you can use the Cadwork Python/C++ API or Rhino.Inside Cadwork to optimize your CAD workflows and automate tasks. Get inspired by the many uses of this powerful combinations of CAD and programming.

1.3. RHINO 3DM AS GEOMETRY KERNEL FOR STAND ALONE & WEB APPLICATIONS
Hanno Stehling, Design-to-Production

10'

Rhino3dm is also a powerful geometry kernel outside of Rhino itself, allowing access and manipulation of geometry through .NET or Python with a familiar Rhino Common style. Through three applied projects: a curved timber blank creation Cadwork tool, a prefabricated MEP module web app and an interface to translate from and to BVX and IFC, Hanno will reflect on Design-to-Production's experience with Rhino3dm embedded in other CAD software, web or stand alone apps and its place in Design-to-Production tech stack.
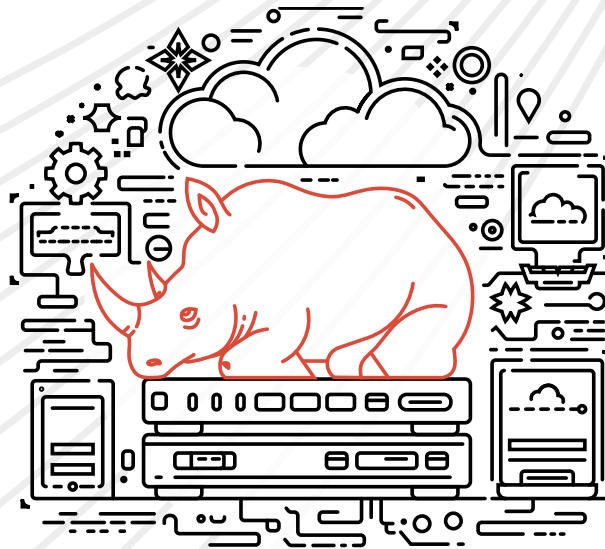
1.4. FROM CONSTRUCTION TO PRODUCTION WITH PARAMETRIC WEBTOOLS
Felix Brunold, VektorNode

10'

The process of transferring data from construction site to production often involves multiple parties, increasing the likelihood of errors along the way. This talk focuses on how we leveraged Rhino.Compute combined with a web frontend to automate and streamline the wall cladding process from construction site to production in only a few clicks.

1.5. MULTI-USER RHINO WITH CRASH
### *Lukas Fuhrimann, StructureCraft*

10'

Crash, an open-source project and Rhino plugin available through the package manager, offers real-time multi-user collaboration within Rhino. This presentation will guide you through the setup of a shared Rhino workspace using Crash, demonstrates how modeling within this collaborative environment works, and concludes with an exploration of the technical intricacies behind Crash's seamless operation.

1.6. PACKHUNT, BUILDING ADVANCED DIGITAL SOLUTIONS WITHOUT THE HASSLE
Jeroen Coenders, Packhunt

10'

Building and sharing digital solutions, such as your own calculation tools or small design system you can share with collaborators, is quite a hassle. Rhino and Grasshopper help you build your tools, but do not provide the means to share if the users of your tools are not skilled in this software. Packhunt provides the way to build your own tools in minutes and share them with others with only a web browser. You can use advanced concepts such as data storage, advanced user interface controls, etc. without having to learn to code. And if you have built your tool, you can share it on the Packhunt marketplace or use tools which others have built.
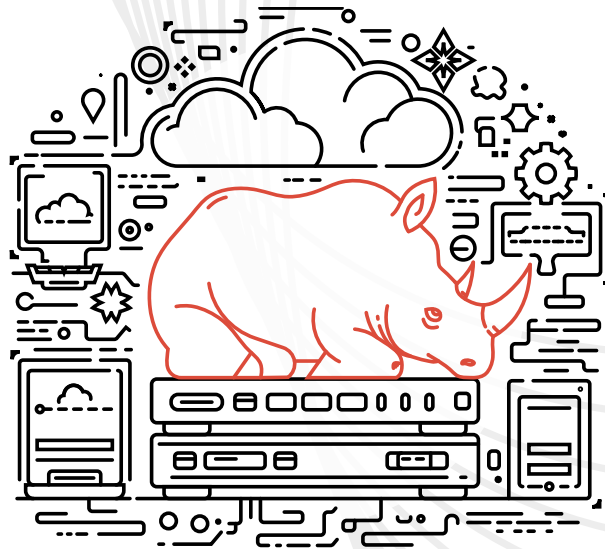
1.7. FROM CAD PLUGIN TO WEB FRONTEND : TURF DESIGN TOOL
Daniel Christev, Design-to-Production

10'

Turf design tool is a powerful Rhino plugin allowing Turf designers to deploy their acoustic ceiling systems on any defined surface at the click of a button. From there, submittal documentation for client approval, cutfile production data and shop drawings can automatically be generated. The entire tool is built like a plugin environment to allow the addition or modification of products drawings, details and cutfiles logic by non-programmers using Json and 3dm files. Additionally, a so-called "Quickship" web interface has been developed to expose to plugin to non rhino users, allowing sales force to order simple ceiling systems by selecting a product, a detail, the amount of baffles needed and the spacing between each baffle. The web interface communicates with a rhino instance running from a server and delivers all the required paper works and production data to close the deal without having to draw a single rhino line !

1.8. WOOD SYSTEMS BY PAZ ACADEMY
Nora Bukovits & Andrés Velasco Muro, Parametric Academy Zurich

10'

Dive deep into the world of Timber Engineering with PAZ – Parametric Academy Zurich. We're at the vanguard, offering training pathways for professionals eager to push the boundaries of wood design and construction. Our courses, including the specialized Rhino.Inside.Cadwork, are tailored to empower you. Every day, we partner with forward-thinking Wood companies, introducing them to the transformative power of parametric design, Rhino, Grasshopper, and integrated BIM practices. Beyond training, our consultancy provides tailored project development, software solutions, and web platforms. And with Rhino.Compute, we're not just adopting the future; we're actively shaping it !
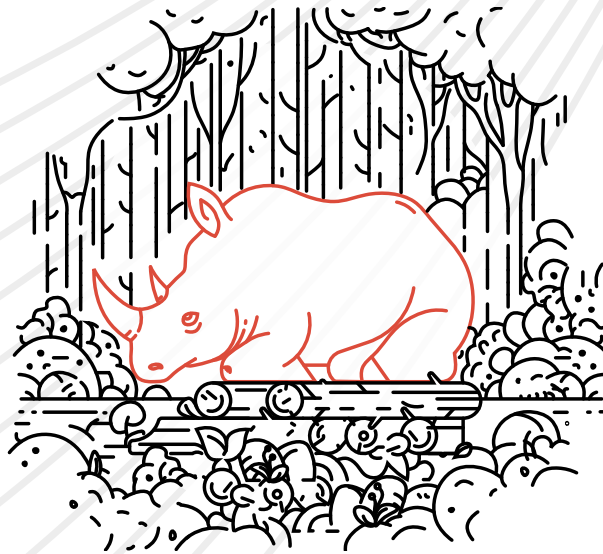
SESSION 2 - RHINOS IN THE WOODS

Even though the timber industry is not a monolith, we all share common challenges. How can digital transformation help us work more efficiently and build better in timber ?

2.1. INTEGRATED DESIGN-TO-MANUFACTURING WORKFLOW IN MODULAR TIMBER CONSTRUCTION
Edyta Augustynowicz, Bern Fach Hochschule

10'

Explore the practical application of Rhino in the field of modular timber construction, with a particular focus on the aDisposition research project. The timber construction industry is currently undergoing a transformation, with digitalisation and modular systems playing a crucial role in improving sustainability and efficiency. The aDisposition project by researchers at BFH AHB proposes a reconfigurable system that transforms unused spaces into functional structures through temporary reusable room-in-room systems. We will present the custom configurator that has been developed to facilitate the design and customisation of these units, provide static and performance analysis, and prepare files for CNC production in accordance with manufacturing company standards. The presentation will also explore how this approach can be applied to larger projects with increased complexity and multiple partners, providing a realistic and informative overview of the current state and future potential of digitalisation in the timber construction industry.

2.2. BOOSTING REAL ESTATE PRODUCTS: PARAMETRIC CONFIGURATOR FOR TIMBER MODULAR SOLUTIONS
Giulia Curletto, Implenia

10'

The Real Estate Product Configurator streamlines location-specific feasibility studies, quickly generating building layouts using Implenia's pre-designed prefabricated timber modules. Developed in a computational design framework, it automatically explores multiple options, identifying an optimal solution that maximizes efficiency and compactness, while ensuring compliance with all specified criteria. Within minutes, it produces a real-time performance summary, circularity assessment, and quantity report, enhancing collaboration and enabling informed decisions early in the design process.
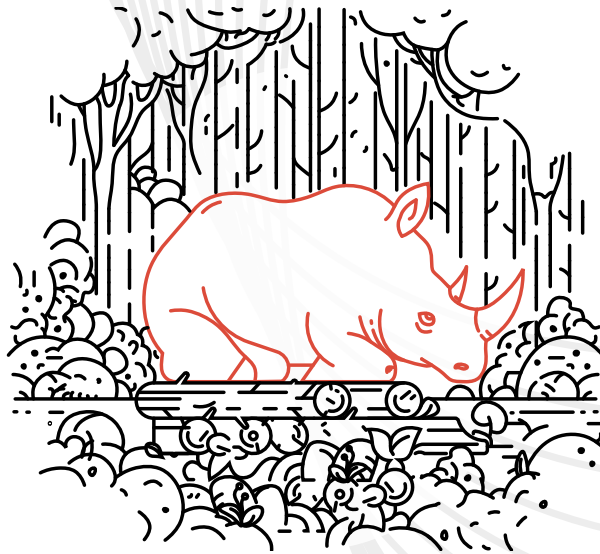
2.3. HOW TO GET THERE - THE 'WISDOME STOCKHOLM' STRUCTURAL MODEL
Stefan Rick, SJB Kempter Fitze

10'

Wisdome Stockholm is an extension to the Stockholm's Technical Museum due to open in December 2023 featuring an innovative timber roof. The 24 by 47 meters free-form grid-shell, consists of five crossing layers of doubly curved beams and is completely prefabricated from laminated veneer lumber (LVL). Beam segments were bent and twisted on-site from flat, CNC-cut LVL-lamellae and locked in shape by wooden dowels to form a stiff structure. This talk will explore the modelling process from base geometry to an accurate structural model from an engineer's point of view.

2.4. FROM (DATA) TREES TO (MACHINED) TREES
*Ursula Frick, Blumer-Lehmann*

10'

The application of modern technologies in the Timber industry enables the realization of extraordinary constructions. Nowadays, it is possible to build ecologically and economically sustainable timber structures that go far beyond the assemblage of straight timber beams. To make this possible, innovative planning and engineering processes have to be employed before production. Only parametric modelling and scripting enables efficient digital fabrication of complex geometries. The creation and manipulation of digital 3D models that precisely define all the elements, joints, and connections of an architectural project with parameters. Thus, forming an end-to-end digital chain directly linking the CAD design of the building and computer-aided CAM manufacturing. Nothing is left to chance with every cutting pass simulated in the digital world before committing to being brought into physical world, the result is precise individual parts that fit together perfectly.

2.5. RHINO IMPULSES FOR TIMBER CONSTRUCTION
Hermann Blumer, Création Holz

15'

What are the specific needs of the Timber industry when it comes to CAD & CAE softwares? With 54 years of engineering experience and his name attached to some of the most iconic free form timber constructions of the past 20 years, Hermann Blumer will explore the impact of his softwares palette on unique projects and on the collaboration between Architects, Engineers, Planners and Machinists. Looking forward, Hermann will share his views and whishes for the future of Timber construction & Softwares.
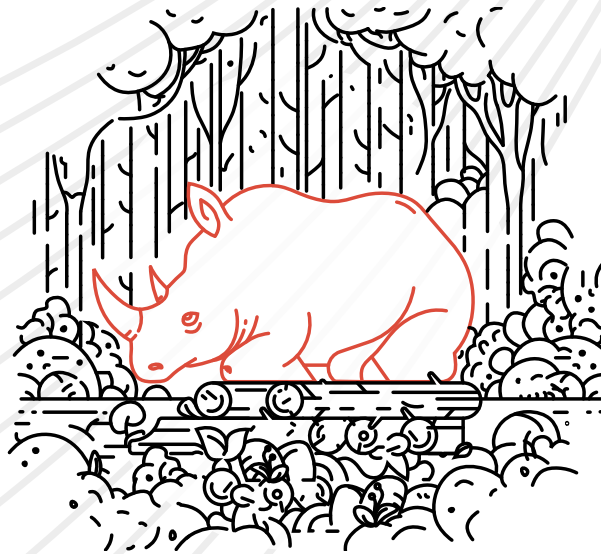
2.6. FROM POINT CLOUD TO PRODUCTION: USING RHINO AS A TOOL
Adrian Scherrer, Treppenbau.ch

10'

Experience the innovative journey from point cloud analysis to precise CNC manufacturing of double-curved parts at Treppenbau.ch. We carefully analyse and extract relevant geometry from the point cloud data, refining and simplifying it as necessary. This optimized data undergoes unroll and rollup processes, enabling us to produce flexible double-curved wood segments design specifically to our business requirements.

2.7. SPEARHEAD RHINO/CADWORK FABRICATION TOOLS
Fabien Peterman, Spearhead

10'

Spearhead regularly develops tools to boost the efficiency of their design and fabrication process. Fabien's presentation will explore how needs are identified internally and transformed into tools for Rhino/Grasshopper & Cadwork by the dedicated team, supported by a couple of examples of scripts: packers and nailers, curve glulam nesting optimization, BTL export, etc. Finally, we'll showcase the packaging crate standalone app and the use of Cadwork API.

2.8. BRIDGING THE GAP BETWEEN DESIGN AND PRODUCTION
Martin Pfundt & Moritz Niebler, Design-to-Production

10'

The Seeblickweg pedestrian bridge in Stuttgart consists of two 16 tons, 23 meter long monolithic timber elements. Rebuilding of the base geometry to account for the bridge relaxation under its own weight, export of glueing data for a 27 meter gluelam press, precise modelling of the bridge curved bottom surface and creation of BTL fabrication data, such were the challenges faced by Design-to-Production during the fast pace planning phase. Martin will open his custom toolbox for us and explain how the parametric workflow was able to save the project when the CNC machine started to go rogue !

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EDYTA AUGUSTYNOWICZ, BERN FACH HOCHSCHULE

Edyta is an architect and digital designer with diverse experience in the Swiss construction industry, architecture and academia. After receiving her MAS CAAD from ETH Zurich in 2010, she worked at DT at Herzog and de Meuron, ETH Zurich, ERNE AG Holzbau and FHNW. She is currently Professor of Digital Wood Fabrication at the Department of Architecture at the Bern University of Applied Sciences. Her interests focus on digital design and robotic wood fabrication processes, as well as redefining the role of the architect in digitised construction.

HERMANN BLUMER, CRÉATION HOLZ

Hermann Blumer was trained as a carpenter between 1958 and 1961 and later earned his civil engineering degree from the ETH Zurich between 1964 and 1969. He then specialised in timber construction during his two years as an assistant at the University of Karlsruhe. While working at his family's timber construction company, he developed the BSB system, Lignaturdecken, high-frequency gluing and the 5-axis Lignamatik joinery machine. From 1997 inwards, he led Bois Vision 2001 to showcase the Swiss timber industry at the Expo 2002. In 2003, he grounded Création Holz with whom he was able to realise outstanding timber buildings such as the Centre Pompidou in Metz and the Golf House in Yeoju.

MICHAEL BRUNNER, CADWORK

After his apprenticeship as a carpenter, Michael studied wood construction technology at the HF in Biel and later deepened his knowledge in the field of BIM with two consecutive CAS courses. He currently works at Cadwork in software development, his greatest passion, with the mission to further develop the IFC and API interface. Meanwhile, Michale is pursuing a MAS degree in Software Engineering at the University of Applied Sciences East.

FELIX BRUNOLD, VEKTORNODE

Felix Brunold has a background in Industrial Design, with a focus on computational design as a tool for decision-making. Felix later turned his attention to the construction industry, particularly its production processes. Identifying the potential for more efficient production solutions and design possibilities through computational design, he co-founded VektorNode.

ANDRÉS VELASCO MURO, PAZ
NORA BUKOVITS, PAZ

Welcome to PAZ Academy, based in Switzerland. Nora and Andrés, originally from Hungary and Spain, guide the academy as experienced Architects, Engineers, and Computational Designers. Our journey began at university, where we pioneered in teaching Parametric Design. This expertise spans areas like Building Systems, origami, tensegrity, and much more fun :D !

For over 15 years, we've collaborated on international projects, partnering with professionals keen to innovate. Our dedication to technology has made Rhino a cornerstone of our work. With each new project or training, we're driven by a simple belief: "Design your process."

DAN CHRISTEV, DESIGN-TO-PRODUCTION

Daniel Christev is a software developer in the AEC industry trained as an architect in New Zealand. Daniel specialises in automation of architectural processes and advanced geometry and developed various productivity tools and configurators within Design-to-Production since 2022. As an innovator, he is interested in pushing the computational envelope and trying to shape the future of the industry through cutting-edge technology.

JEROEN COENDERS, PACKHUNT

Jeroen Coenders, CEO/CTO at Packhunt, has a long history in computational design. At Arup he has been responsible for founding and building the computational design skill in Amsterdam and Europe. For over 20 years he has employed computational design as part of well-known projects such as the Guangzhou TV & Sightseeing tower, Arnhem Central Station and the Austrian Expo 2010 building. He has been involved in research and development of parametric design technology at Delft University of Technology and organisations such as SmartGeometry and IASS.

PEDRO CORTÉS, MCNEEL

Pedro Cortés is a developer and technical support specialist at McNeel Europe. Since he joined the company in 2021, he is involved in the development of several projects, including Rhino.Inside Revit. Pedro also has experience as a Rhino and Grasshopper trainer, coordinating the Training Course for Resellers and participating as a teacher in events and workshops. In addition, Pedro collaborates in Rhino User Webinars, a series of talks in which professionals and experts share their advances in the use of new technologies (AI, ML) with McNeel tools (Grasshopper, Rhino.Compute, Rhino.Inside).

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GIULIA CURLETTO, IMPLENIA

Giulia Curletto, 34, is an Architectural Master's & Structural Engineering Ph.D. holder specialized in Computational Design. During the first seven years of her career, she focused on parametric modeling of complex structures and implementation of a DFMA approach within innovative firms across Italy, the UK, and Switzerland. Currently, Giulia is Digital Design & Innovation Manager at Implenia Real Estate, driving BIM-based design automation. She is enthusiastic about a multi-dimensional approach to tackle construction challenges.

URSULA FRICK, BLUMER-LEHMANN

Ursula Frick is an architect and a specialist in computational design and digital fabrication with several years of practice and teaching experience. She is based in Switzerland and works for the timber construction company Blumer-Lehmann. In her role as head of the advanced geometry group she is responsible for the translation of architectural designs into bespoke geometry models optimized for CNC fabrication.

LUKAS FUHRIMANN, STRUCTURCRAFT

Lukas Fuhrimann is a software developer and product manager with a strong background in structural engineering. Lukas has lived and worked across the globe in Stuttgart, New York, Vancouver and recently moved Zurich Switzerland where he is dedicated to develop besoke BIM software for the construction sector. Crash was born as a collaborative initiative during a Hackathon in November 2022 and is continued to be developed as an open-source project with a dedicated team of developers. If you're inspired and have some spare time, we invite you to join us in shaping the future of collaborative Rhino modeling.

MORITZ NIEBLER DESIGN-TO-PRODUCTION

Moritz Niebler is consultant at Design-to-Production Zurich developing digital fabrication and planning solutions for complex timber structures. Trained as architect and carpenter Moritz works at the interface between Architects, Engineers and Contractors with a focus on design for manufacturing and assembly.

FABIEN PETERMAN, SPEARHEAD

Fabien Petersmann grew up in the South of France where he studied wood construction design followed by a bachelor's degree in timber engineering at ENSTIB (French Engineering College of Wood Technology and Industry). After several years of work experience in France, he moved to Western Canada to work for Spearhead as a Project Coordinator. 8 years later, he is leading the Technical department linking Spearhead's digital planning and fabrication.

MARTIN PFUNDT, DESIGN-TO-PRODUCTION

As a master carpenter, Martin Pfundt was involved in the construction of iconic complex timber projects such as the Expo Dach Hannover or the Centre Pompidou Metz before pursuing his career as a CNC and fabrication data specialist at Holzbau Amann and later at Blumer Lehmann. Since 2018, Martin is a consultant for digital fabrication and planning at Design-to-Production where he develop solutions for software interoperability and applies his knowledge and experience on innovative timber projects.

STEFAN RICK, SJB KEMPTER FITZE AG

Stefan Rick has a Masters degree in civil engineering from Germany, with a practical background as a Master craftsman in carpentry. Since he started working as a structural engineer for SJB Kempter Fitze AG in 2013, he got more and more involved in international projects with a main focus on complex timber structures all over the world. The diversity of his engineering tasks is broad and ranges from museums, residential and commercial buildings, multi-purpose halls to geometrically elusive free-form structures. His involvement in projects as a structural engineer ranges from consultative roles, to participation in competitions, feasibility studies, concept phases, tendering processes and all the way to the execution phase with the detailing of every last connection and eventual site visits.

ADRIAN SCHERRER, TREPPENBAU.CH

Adrian Scherrer is a master carpenter, manager and co-owner of Treppenbau.ch in Ganterschwil (SG). After completing his carpenter apprenticeship and earning his diploma from the Schweizerische Bauschule Aarau, Adrian worked in Canada for 4 years as a project manager and CAD drafter. Upon his return in Switzerland, he completed the business management program at the SIU St Gallen and became a certified master carpenter. For the past 10 years, Adrian has been member of the management and co-owner of Treppenbau.ch AG, driving the company forward with projects both domestically and internationally.

HANNO STEHLING, DESIGN-TO-PRODUCTION

Hanno Stehling is partner and head of software development at the digital building process consultancy Design-to-Production in Zurich, where he leads a team of architects and programmers developing digital tools for CAD-CAM workflows and general data management for both in-house and external use. He graduated with a diploma in architecture from University of Kassel, Germany. He has a strong background in computer programming and gradually focused his studies onto the intersection between architecture and computer science, joining a research group about parametric design led by Prof. Manfred Grohmann of Bollinger + Grohmann and Oliver Tessmann (now Professor for Digital Design at TU Darmstadt). After graduating, he worked as a freelance programmer and as computational designer for renowned architects like Bernhard Franken before joining Design-to-Production in 2009.

VENUE

The event is hosted in Design-to-Production office building : *Seestrasse 78, 8703 Erlenbach*

Our office is located within walking distance from the Erlenbach train station with direct connection from Zurich Hauptbahnhof using the S6 and S16.