TAO SUN
DESIGN & COMPUTATION

PhD researcher in Building Science at UC Berkeley working at the intersection of AI and AEC, building agentic, multi-step workflows to support design decisions under real project constraints. Industry experience prototyping and integrating applied AI tools at Drees & Sommer and BMW (multimodal LLM workflows, multi-agent analytics, visualization). Strong in programming for AEC software integration (Revit/Rhino/Grasshopper), with technical documentation and publications.

Contact Information

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Technical Skills

C#
Java
Python (COMPAS, PyTorch, LangChain)
LaTeX

Grasshopper
Rhinoceros
Blender
Unity
Sketchup
Cinema 4D

Adobe Creative Suite
Autodesk Revit
Autodesk AutoCAD
Archicad
Enscape
V-Ray

Language

Chinese - native

German - fluent

English - fluent

Professional Experience

Computational Designer, Freelancing, Remote
AUGUST 2025 - PRESENT

- Collaborating with Berlin-based Swiss architect and artist Ferdinand Facklam on AI-aided generative design artworks.

AI and Digitalisation Specialist, Drees & Sommer, Munich, Germany
JUNE 2024 - AUGUST 2025

- Led a small, multi-site applied AI research team that identified AI use cases and developed digital tools for core built-environment business workflows, including: a corporate, self-hosted AI image-generation platform with bespoke workflows; a business-intelligence service built on a multi-agent system; and a suite of multimodal, LLM-assisted customer-analysis tools.
- Built an internal AI knowledge-management platform and launched a recurring newsletter to strengthen internal communication and knowledge transfer.

Course Instructor, Technical University of Munich, Germany
AUGUST 2024 - APRIL 2025

- Master's level course: Computational Design and Digital Fabrication.
- Co-developed course materials, including lecture slides, example files, and assignments.
- Delivered engaging lessons on Python fundamentals and its applications in computational design, with a focus on the RhinoCommon API.
- Graded assignments contributing to students' final marks.

Working Student, BMW Group, Munich, Germany
MAY 2023 - MAY 2024

- 20 hours/week part-time position.
- Department of Functional Development and Data Management (IT) in collaboration with BMW design team in the topic of "Generative Design and Tool Development"
- Co-development of AI Design Assistant.
- Facilitated the collaboration between Zaha Hadid Architects and BMW Design.
- Provided Kangaroo training sessions for the Generative Design team, and produced training materials including example projects, presentation slides, and hands-on assignments.

Architectural Assistant, Foster + Partners, London, UK
SEPTEMBER 2022 - MARCH 2023

- Part of the Specialist Modelling Group (SMG), a multidisciplinary computational research and development team composed of professionals from diverse backgrounds.
- Consulted and developed computer-aided solutions for complex and customized architectural design problems, including JP Morgan Chase in New York, Serpentine Pavilion in Miami, and Burkhamseem Tower in Kuwait.
- The 1 to 1 model of my project "Shadow of Equilibrium" (duo-structure) permanently displayed in the main studio at the London office (details available in the portfolio).
- Own machine learning project resulted in a conference paper presented at IWSS 2023.

Student Assistant (HiWi), Structural Design, Technical University of Munich, Germany
SEPTEMBER 2021 - SEPTEMBER 2022 | APRIL 2023 - SEPTEMBER 2023

- First period: Provided administrative support for the chair, managing daily tasks and facilitating effective communication within the team and with external stakeholders.
- Second period: Contributed to grant applications by preparing supporting materials and ensuring alignment with funding requirements.

Working Student, HPP Architekten, Munich, Germany
MAY 2021 - SEPTEMBER 2022 | MARCH 2023 - MAY 2023

- 20 hours/week part-time position.
- Creative and efficient work on architectural projects in an international and multicultural environment with the focus on computational methods.

Intern, gmp, Shanghai, China
JANUARY 2021 - APRIL 2021

- Developed 3D models and renderings, conducted research and analysis, designed a commercial mall, and created the competition brochure for a high-rise complex project.

Intern, Architekturbüro Brandt, Kirchheimbolanden, Germany
JULY 2017 - AUGUST 2017

- Completed a pre-architecture internship, gaining proficiency in industry-standard CAD software and shadowing architects to understand professional workflows.

Education

PhD, University of California, Berkeley, United States
AUGUST 2025 - PRESENT

- Building Science, Technology, and Sustainability program.
- Working with Prof. Ramon Weber and Prof. Simon Schleicher.
- Focus on applied AI research for the built environment.

M.A. Architecture, Technical University of Munich, Germany
SEPTEMBER 2021 - APRIL 2024

- Mentorship program “Computational Methods in Architecture”
- Specialization in architectural computation and digital fabrication.
- Final thesis on AI-enhanced structural design tool passed with high distinction

Software Engineering, University of Queensland, Australia
FEBRUARY 2020 - DECEMBER 2020

- Temporarily shifted focus to programming and computer hardware, taking courses in Software Engineering and Computer Science to gain a deeper understanding of computational design methodologies in architecture.

B.A. Architecture, Technical University of Munich, Deutschland
SEPTEMBER 2017 - JULY 2021

- Bachelor thesis "Transformable Cladding System" awarded 2nd Prize in the Bauindustrie Bayern Award.
- Won 2nd Place in a competition to revitalize a decommissioned concrete factory into a multifunctional cultural center, mentored by visiting professor Fritz Auer and his team from Auer Weber Associates.

German High School Diploma (Abitur), Gymnasium Weierhof, Germany
AUGUST 2015 - JULY 2017

- Awarded the German Chemistry Society (GDCh) Prize as the top chemistry student of the year.

Research Experience

AEC Hackathon, Technical University of Munich, Germany
NOVEMBER 2024

- Developed "ParseThat!"—an AI-powered web tool leveraging large language models (LLMs) to transform unstructured PDF data into structured unified language for modular construction workflows.
- Contributed to core algorithms, LLM deployment, and final presentation, addressing inefficiencies in data handling within the AEC industry.

Design++ Summer School: AI in AEC, ETH Zürich, Switzerland
SEPTEMBER 2024

- Attended the inaugural one-week summer school, focusing on the transformative potential of AI in AEC, including sustainable design, construction management, and forward & inverse design ideation.
- Collaborated with a team to develop performance-informed designs for climate-resilient buildings using generative AI models, resulting in a conference paper.

Community Engagement

Member, Strategy Group for Digitalization, Bavarian Chamber of Architects, Germany
DECEMBER 2024 - PRESENT

- Establishing dedicated support for digital transformation and assisting municipalities.
- Expanding BIM training and strengthening university collaborations.
- Advocating for the profession through dialogue with policymakers.
- Linking digital transformation with ecological and sustainable building practices.

Social Media Manager, IASS-International Association for Shell and Spatial Structures
SEPTEMBER 2024 - PRESENT

- Managing and strategizing content for the official IASS Instagram account to enhance brand visibility and engagement.

Publications, Presentations & Talks

Leading Author

T. Sun, L. Bleker, M. Günes, P. D'Acunto and F. Petzold. "Automated Visualization for Structural Form-Finding using Orchestrated Multimodal Machine Learning Agents," IASS 2025, Mexico City, Mexico, 2025. **(published)**

- **[PRESENTATION]** Presented in the session "AI-informed Structural Engineering and Design " at IASS 2025

T. Sun, P. D'Acunto, and F. Petzold, "Structural Embodiment – Unified Workflow and Toolkit for Form-finding, Solid Geometry Generation and Visualisation via Deep Learning Methods," IASS 2024, Zurich, Switzerland, 2024. **(published)**

- **[PRESENTATION]** Presented in the session "Next Generation Parametric Design" at IASS 2024.
- **[WORKSHOP]** Presented and demonstrated my Grasshopper plugin, "Structural Embodiment Toolkit" at the IASS 2024 Workshop "Machine Learning-Assisted Computational Structural Design".
- **[INVITED TALK]** Invited by Robert K. Otani, Head of Thornton Tomasetti's Core Studio, to give a presentation on this paper to their Special Structures community.

T. Sun, M. Konstantatou, C. Fivet, and P. D'Acunto, "Geometry-Driven Stock-Constrained truss design via Equilibrium-Based structural models," in *Lecture notes in civil engineering*, 2023, pp. 727–736. **(published)**

- **[PRESENTATION]** Presented in the main event hall of IWSS 2023.

T. Sun and C. Lindner, "Transformable Cladding Systems: Research, Design and Fabrication," Technical University of Munich, 2021. [Online]. Available: https://mediatum.ub.tum.de/1641773 **(published)**

T. Sun, C. Lindner, and J. Schikore, "Adaptive Shading Systems – a development for transformable grid structures," Stuttgart, Germany. **(presented)**

- **[PRESENTATION]** Presented online due to COVID19

Contributing Author

G. Bittencourt, V. Piccioni, T. P. Sommer, **T. Sun**, K. Newton, A. Apolinarska, L. Salamanca, and C. Waibel, "Casamatic: Performance-Based Building Generation via Conditional Autoencoders," SBE25, Zurich, Switzerland, 2025. **(published)**

M. Gunes, L. Bleker, **T. Sun**, and P. D'Acunto, "Synthetic Dataset for ML-Based Image-to-3D Reconstruction of Bridge Infrastructures," GNI, Munich, Germany, 2024. **(presented)**

Awards and Honors

- Germany Scholarship (Deutschlandstipendium) 23/24
- Germany Scholarship (Deutschlandstipendium) 22/23
- 2nd Prize of the Bavarian Construction Industry (Hochschulpreis der Bayerischen Bauindustrie) 2022
- German Chemistry Society (GDCh) Prize