

Deebak Tamilmani



Architect | Computational Designer

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Education

2024-26 **Pennsylvania State University**

MSc in Architecture (Design Computing)

CGPA - 3.91*

2013-18 **Thiagarajar College of Engineering (Anna University)**

Bachelors in Architecture

CGPA - 7.18

Technical Publications 2025 **SIGraDI (Paper accepted)**

Embedding Intelligence in 3D Modeling: Fine-Tuning Language Models to Enable Natural Language Interaction for Rhino 3D. SIGraDi 2025 Conference Proceedings.

Awards

2025 **ICDS - Rising Researcher Grant**

Recipient of the ICDS Rising Researcher Collaborations award for the project Embedding Intelligence in 3D Modeling Workflows.

2024 **Pennsylvania State University**

Selected as a fully-funded scholar for the Master of Science in Architecture (Design Computing) program for the 2024-2026 academic period and **Distinguished Masters Thesis Award** winner.

2022 **Royal Commission Al'Ula**

Recognized as a winning entry in an exclusive, by-invitation-only design competition featuring 100 of the world's top architects.

2021 **SCI-Arc Summer Program**

Recipient of the International Scholarship for the SCI-Arc Making and Meaning summer program, 2021

2021 **Featured NFT Artist**

Featured Digital Artist on the exclusive NFT marketplaces, KnownOrigin and Foundation.

2017 **Center for Green Building Materials and Technology**

Recognized for innovative design in the CGBMT Furniture Competition with a winning entry crafted primarily from bamboo.

Teaching

2022 Introduction to Parametric Design

Academy of Architecture

Instructed a four-month elective course on parametric design for architecture students across all year levels. The curriculum, utilizing Rhino and Grasshopper, focused on foundational mathematical concepts and geometric manipulation to build a core understanding of algorithmic thinking and complex problem-solving.

2022 Hyper Visual Compositions

Digital Futures Conference

Invited guest speaker for the 'Hyper Visual Compositions' workshop. Delivered a one-hour lecture on 'The Art of Image Making,' covering the principles of composition, lighting, and material theory to create emotionally resonant digital visuals. Concluded with a live deconstruction of a creative workflow in Twinmotion.

2025 Felted Fibers

Pennsylvania State University

As Teaching Assistant for Dr. Felecia Davis's studio, I facilitated the integration of computational workflows for final-year students. This involved leading workshops on Crane (digital origami), Karamba (prototype analysis), and Fologram to enable immersive, real-space visualization of their projects.

Technical Projects

2024 Personal Wellness Assistant

Academic



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Designed and prototyped a conversational AI-powered wellness assistant using the Mind Studio platform. The system was capable of generating personalized meal and fitness plans based on user requirements. A key feature was its integration with the Slack API to deliver automated, timely reminders for wellness goals, such as sleep schedules, demonstrating the ability to connect AI with external productivity tools.

2025 CNN for Rhino 3D command prediction

Academic

Developed and trained a Convolutional Neural Network (CNN) to interpret natural language queries and predict the corresponding Rhinoceros 3D command. This project served as a foundation for my current graduate research thesis focuses on developing a LLM based tool for AI-Assisted 3D modeling.

2026 Rhino Agentic Modeling (Web App)

<https://youtu.be/Olq6WSCDyGw>

Built a full-stack, agentic AI web application that enables conversational 3D modeling through a RAG-based system that interprets user intent, generates models, autonomously detects and resolves errors, and provides a parametric control panel for real-time design adjustments.

Software skills

3D Modelling and Drafting

AutoCAD, Rhinoceros 3d, Maya, Houdini, Sketchup, Zbrush

Coding and scripting

Python, C#, Processing, Grasshopper 3d, Visual Studio Code, VEX, N8N, OpenAI ChatKit, Agents SDK, React, Javascript

Visualization

Corona Renderer / Vray, Enscape / Lumion, Keyshot, Twinmotion / UE5

Presentation

Photoshop, Illustrator, Indesign, Figma, Lightroom, After effects

As a Research Assistant, my work centers on developing an LLM-based system that redefines human-computer interaction in Rhinoceros 3D, replacing conventional UI paradigms with intuitive natural language commands. My core contributions involve architecting the system's framework, which adapts a general-purpose LLM for this domain through instruction fine-tuning on Rhino-specific data and also curating a training dataset for this purpose.

- **Cloud Forest - Aviary** - Worked on conceptualizing and developed a parametric system for aviary structure based on the theme of the project 'Cloud Forest'. The projects spans upto 200 m x 45 m and the parametric system enabled us to iterate through various option for the structural system and joints based on the feedback from the structural engineers.
- **Hues of Alula - Competition** - An international competition conducted by the Royal Commission of Alula as part of their larger master plan for Alula. During this three-phase competition, I was responsible for design development, visualization, research on materials, fabrication, and 3D printing strategies and techniques.
- **CSK - High Performance Center** - A 3 lakh sq.ft high performance center and a club facility for the domestic indian cricket team 'Chennai super kings', majorly invloved in design development, visualization, schematic drawings and coordination. Developed a full-fledged parametric system inside grasshopper using rhinocommon library to automate the production of technical drawings and model.
- **Streetscape - Office for builders** - Worked on conceptualizing a office complex for a real estate developers and builders. Majorly involved in design development, schematic drawings and 3d - VR visualization.
- **Telengana Urban Excellence Center - Competition** - Contributed to the design of the form and facade of the main excellence center, as well as the design development and planning of the housing and accommodation part of the project.
- **Facade design** - Contributed by developing a parametric system that responds to the sun direction, existing structural grid for the design of facade that enabled us to iterate through multiple options for three projects using Rhino and Grasshopper.
- **Bus stop and Study Center for Latur** - Worked on the design development of both the bus stop and study center that is going to be mass produced across latur city. Design of a bus stop also involved a collaboration with Tvasta 3dp - A concrete 3d printing studio.

- **Housing and Masterplanning** - Worked on a three phased housing development project of 1.5 million square foot. Scope of work involved design development of the housing complex, clubhouse and other facilities, preparation of detailed construction drawings and 3d visualization. Work involved weekly design review meeting with clients, structural and MEP consultants.
- **Housing - 38 and Banyan** - In this ten storey housing in bangalore, I worked on preparing construction drawings.

2021 Madras Talkies

Assistant Production Designer

During the pre-production stage of the movie "Ponniyin Selvan" by acclaimed director Mani Ratnam, I worked with National award-winning production designer Sharmishta Roy to design set pieces. Work also involved researching the lifestyle, architecture, and fashion during the Chola dynasty.

2016-17 Triple O Studio

Intern

- **Furniture Design** - Contributed by designing a chair using repurposed wood and steel for the Kochi Muziris Bienalle Pavilion, as well as a multipurpose convertible furniture piece using bamboo and steel as primary materials for CGBMT.
- **Interior Design** - Involved in the design development of a kiosk for the Writer's Cafe, a workspace for an AI-based startup studio, a co-working space for an architectural studio, and the lobby of a theatre complex.
- **Facade Design** - Assisted in designing the facade of the theatre complex using galvanized metal sheets as the primary material without altering the existing structural grid.
- **Graphic Design** - Designed an illustrated map for the rail route in Chennai that highlights the transformation of architectural buildings throughout the city. In addition, I created a comical strip that showcases a step-by-step process of constructing a home for local residents who wish to build their own homes.

2016 DI Comics

Concept and Storyboard artist

In this two month summer internship I had the pleasure to work on story boarding and conceptualization of environments for an animated video song.