Vinayak Tiwari

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EDUCATION

Masters in Advanced Architecure   Barcelona, Spain | Aug 2024-2026
INSTITUTE FOR ADVANCED ARCHITECTURE OF CATALONIA
Coursework: Sustainable Building Systems, Life Cycle Assessment (LCA), Circular Economy in Built Environment, Material Reuse Strategies, Environmental Simulation, Computational Design & Optimization

Bachelor of Architecture (B.Arch)   Noida, India | May 2024
AMITY SCHOOL OF ARCHITECTURE AND PLANNING   CGPA : 8.20
Coursework: Architectural Design Studios, Sustainable Built Environment, Passive Design Strategies, Construction Technology, Urban Design, Building Services

WORK EXPERIENCE

WENETWORK.APP | SUSTAINABILITY CONSULTANT INTERN   Barcelona, Spain | July 2025 – Present

- Conducted ESG research and circularity assessments for **5+ partner organizations**, aligning strategies with global sustainability frameworks.
- Supported development of **3 tailored ESG roadmaps** with measurable KPIs, targeting **15–18% reductions in carbon emissions**.
- Contributed to sustainability reports and impact analyses presented to stakeholders, influencing decision-making for the given projects.

STUDIO EFI | ARCHITECTURAL INTERN   Gurgoan, India | Dec 2023 – Jun 2024

- Contributed to the design and execution of **8 architectural projects** spanning a combined built area of **42,000 sq.m.**.
- Coordinated with contractors and consultants to streamline on-site and off-site workflows, reducing use of virgin materials by **12%**.
- Produced detailed design drawings and presentations that improved client approvals and accelerated the design development phase.

DECOFICE | PRODUCT DESIGN INTERN   Remote | Nov 2022 – Mar 2023

- Supported a startup focused on **enhancing efficiency in architectural project execution** through digital workflows.
- Designed app workflows and improved UI/UX, reducing navigation time by an estimated **20%**.
- Contributed to establishing the brand identity, ensuring alignment with the company's mission of streamlining project delivery.

BUMBLE | USER EXPERIENCE RESEARCH   Remote | Oct 2021 – Sep 2022

- Conducted extensive **user behavior analysis** with a focus on **women's safety and trust features**, surveying and interviewing 200+ users.
- Delivered insights that directly informed **4 major product updates**, from wireframing to execution, improving safety-related user flows.
- Collaborated with design and product teams to integrate user feedback, resulting in a measurable increase in reported **user satisfaction and engagement**.

RESEARCH & PUBLICATIONS

Empowering Para-Athletes Through Space Syntax-Informed Parametric Design
Undergraduate Thesis @ Amity School of Architecture and Planning

- Developed a sports complex integrating **space syntax analysis** and **parametric design** to enhance inclusivity and athletic performance.
- Demonstrated how data-driven design can promote **social equity** and accessibility in built environments.

Exploring the Role of Doors as Hierarchical Elements in Institutional Architecture
Independent Research Publication

- Investigated the symbolic and functional significance of **architectural thresholds**, framing doors as hierarchical elements within institutional spaces.
- Linked spatial hierarchy to **sustainable planning and circulation efficiency**.

Revitalizing India's Industrial Heritage: Adaptive Reuse of Mill Factories
Research Publication on Circularity in Architecture

- Proposed **adaptive reuse strategies** for abandoned mill factories from the industrial era.
- Applied principles of the **circular economy** to preserve cultural heritage while reducing material and carbon footprints.

PROJECTS

G3 SYSTEM DESIGN PROJECT | IAAC STUDIO | ⬈   Rhino, Grasshopper, Ladybug, Honeybee, AI Tools

- Designed a masterplan for Sant Adrià de Besòs integrating **waste-to-energy systems and rewilding strategies** across a 60-hectare ecological corridor.
- Addressed CO2 emissions of **1.6M tons annually** from the Besòs plant by proposing a transition to **70% renewable energy by 2030** and reducing plant dependency to **10% by 2050**.
- Developed system components including a **pyrolysis building, algae farms, mycelium lab, and Morton Center**, while incorporating biodiversity strategies supporting **160+ species**.
- Applied computational tools and AI explorations to simulate **flood resilience (500 m³/s peak) and circulation optimization**.

CIRCULARITY IN BUILT ENVIRONMENT | IAAC STUDIO | ⬈   Rhino, OneClick LCA, Grasshopper,

- Designed and simulated a prototype building using **circular materials** and validated performance with **OneClick LCA-based assessments**.
- Reduced embodied carbon emissions by approximately **52%** compared to the baseline design through strategic material reuse and low-carbon alternatives.
- Utilized **Wallecie** generative design tool to create multiple building iterations directly from the **available material inventory**, ensuring maximum reuse efficiency.
- Conducted environmental simulations (daylight, thermal, and ventilation) to balance energy performance with circular construction methods.

CIRCULARITY TOOLKIT | INDEPENDENT RESEARCH | ⬈   Python, Rhino, Grasshopper, Three.js, Reinforcement Learning

- Developing an AI-powered toolkit that automates material reuse and modular housing design, capable of generating **50+ housing layouts** from a given material dataset.
- Integrated **reinforcement learning models** that improve design efficiency by **5-8%** with each iteration, based on circularity and performance metrics.
- Built a web-based interface in **Three.js** enabling real-time interaction with material passports and 3D models, tested with **200+ reused components** (walls, windows, doors, slabs).
- Designed workflows to estimate embodied carbon savings of up to **25–30%** compared to conventional housing prototypes.

SKILLS

Architecture & Energy Tools: AutoCAD, Revit, Rhino, Grasshopper, Ladybug, E-Quest, SketchUp, Lumion, V-Ray
Visualization & UX: Adobe Photoshop, Adobe XD, Figma
Programming & Web: Python, Three.js, HTML/CSS
Core Competencies: Life Cycle Assessment, Circularity Assessment, ESG Strategy, Generative Workflows