| **Richa Gupta**  ***MIT Design, Build, and Research Applied AI***  ***for Architecture and Engineering***  ***Mentioned in*** [***Forbes***](https://www.forbes.com/sites/johnwerner/2024/11/13/ai-curation-in-tomorrows-world-will-be-different/) . | **+1 617-780-9005**  [**richag@mit.edu**](mailto:richag@mit.edu)[**www.richagupta.co.in**](http://www.richagupta.co.in)  [**https://www.linkedin.com/in/richa-gupta-hi**](https://www.linkedin.com/in/richa-gupta-hi) |
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# Education

## Massachusetts Institute of Technology (MIT) Dual Masters of Science 2023 - 2026

**Master of Science in Computer Science** **(SMEECS)**

**Master of Science Design Computation (SMArchS)**

GPA: 4.9/5.0 | Advisor : Dr. Terry Knight & Ashia Wilson(LIDS) | Collaborator : Paul Liang(MIT Media Lab)

Relevant Coursework: Advances in Computer Vision, AI & ML for Engineering Design, Web Development, Interactive Data Visualization, AI Decision Making and Society, Inquiry to Design Computation

## Indian Institute of Technology, Madras (IIT) Augmented Reality & Virtual Reality Certification 2022

(Research Partner) | Relevant Coursework: Perception Engineering, Unity, Unreal Mobile Development

## National Institute of Technology, Raipur (NIT) Bachelors of Architecture 2014 - 2019

# Relevant Work Experience

## Generative AI *Summer Intern* Corbu Inc., San Francisco, USA 2024

Fine-tuned diffusion models with Multi-modal LoRA for four distinct artist styles.

Conducted data collection, hybrid captioning, and hyperparameter tuning to enhance performance.

Built a no-code notebook/agent for streamlined fine-tuning, enabling broader accessibility to designers.

## Design Technologist fivD Inc., 2021 - 2023

Prototyped emerging technologies (AR/VR, Metaverse, Machine Learning) for 150+ in-house architects.

Led zero-to-one development of a SaaS platform that optimized BIM workflows by 30% time.

Coordinated with technical, business, and BIM teams to smart deliver with priorities and trade-offs.

Authored high-fidelity interactive UI prototypes, technical architectures, and go-to-market strategies.

Facilitated Scrum meeting, conducted market studies and formalized multi-stakeholder documentation.

## Co-Founder ArchiDAO, Global, 2022 - 2024

Founded a global blockchain network with 500+ architects and designers spanning six continents.

Delivered projects including 2 Metaverse exp., 1 NFT initiative, and 3 BIM-Blockchain integrations.

Directed cross-functional teams to drive technical, community engagement, and event management

## Architectural Designer Architecture Firms (Access Architects, MYVN Architects), 2019 - 2021

Managed design development, client handovers, and site execution for high-profile projects; developed 3D models and presentation materials.

# Selected Projects

**Material AI**

Advanced text-to-image systems by incorporating post-processing and VLMs extract actionable insights.

Connected AI agents to real-world databases to provide detailed material finishes, cost estimates, and carbon footprint data for interior design and furnishings.

**Bike Design Completion via Generative AI** (2.155 Fall 2024)

Explored VAE, UNet, BikeFusion for partial bike designs from images & parametric data.

Integrated CLIP and robust augmentation for domain-specific alignment.

Achieved 0.958 via text-image guidance and advanced loss for adversarial inpainting.

**Neural Network Project for Image Completion**Fine-tuned a specialized Stable Diffusion model on 10k meticulously curated image pairs.  
Incorporated advanced CLIP-based guidance and custom losses for robust 0.95811 alignment.  
Explored adversarial noise/occlusion vulnerabilities, refining pipelines for enhanced resilience.

[**Sketch to 3D software**](https://letschec.my.canva.site/dagzgyfpngs) (1st Prize, HMC Architects’ Hackathon, LA 2021)

Led “form sketcher” workflow (Part 1/3), analyzing environment alongside M. Mistry & T. Bhattacharjee

Aimed for flexible any age professional design integrating technology seamlessly with creative processes

Built a Glitch-based websocket to bridge p5.js data (sketch/voice/vision) with open-source ML in Rhino-Hops-Grasshopper

[**Text-to-Robotic Assembly for Functional Objects**](https://letschec.my.canva.site/text-to-roboticassembly)(Best Poster Award - 2.156 AI/ML for Eng. Design)

Developed a pipeline combining 3D generative AI and Vision-Language Models to automate component assignment for robotic assembly.

Achieved 98% accuracy in identifying functional components, enhancing user selection precision.

[**Curator AI**](https://youtu.be/ntADqKLBiW8) **- Speech, AI & AR for E-Commerce** (MIT Generative AI Hackathon Winner)

Created a voice-controlled AI recommendation system with visual contextual understanding for Furniture Market, integrating Whisper API, ChatGPT-4o, Google APIs, RoomPlan API, and AR development tools.

Revolutionized user experience by enabling seamless interaction and enhanced product discovery.

**Other Projects**- [3DGeometryTool - 3DIT](https://github.com/richasempire/cube-in-action.git), [ACADIA 2023 - Workshop Tutor (Hybrid Making: Physical Explorations with Computational Matter)](https://www.canva.com/design/DAGcK-4L5qQ/BO3FAK-Cg5L_OxGNjcCtVA/view?utm_content=DAGcK-4L5qQ&utm_campaign=designshare&utm_medium=link2&utm_source=uniquelinks&utlId=h4a92d4b8a8) [Digital tool for Designers](https://youtu.be/Y9iKvJj-dlY?si=9d9e-yOvfiL0Ya43), [IOT Augmented Reality App](https://youtu.be/hleU5ndfpww), [Networking tool](https://letschec.my.canva.site/lct-networking-tool), Gen AI Material Tool, [AI Safety Bias Detection and Ethical AI System](https://drive.google.com/file/d/1pKpxpOBZqwIvvhiN_WDLYhLznNiAApm2/view?usp=sharing), [AI ML Work](https://docs.google.com/document/d/1YAUYIqEq7QoItWaxG_GeW02-7D0OXYvn7Rv4kaVWMLY/edit?usp=sharing)

# Skills

**Programming Languages**: Python, C#, HTML CSS, Unity, Unreal, Grasshopper, Dynamo

**AI/ML Expertise:** Deep Learning, Machine Learning, Vision Language Model, Prompt Engineering

**Software Engineering**: TensorFlow, PyTorch, Git, OpenCV, ReactJs, React Three Fiber, Vercel

**Tools & Platforms**: CAD, Comfy UI, Figma, Tableau, Adobe Suite, Revit, Rhino, Photogrammetry

**Product Management** : Asana, User Testing- A/B, SUS, PMR, GTM

# Awards and Honors

**Hackathon Wins**: MIT Generative AI Hackathon, HMC Hackathon.

**Talks**: Delivered 10+ global workshops on AI Ethics and Generative AI Design (Microsoft, IIT Madras, IEEE Tech Forum, McGill University).

**Recognition**: MIT Fellowship recipient; active leadership in MIT Graduate Student Council.

# Volunteer

MIT Academic Mentor (AMP)

MIT Steward Graduate Student Union (GSU)

Open Source collection of resources around the globe - Architechie Editathon

Research Partner at XTIC, IIT Madras

MIT Advocacy Student for External Affair Board (EAB)