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# SEAB

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# INTERVIEW WITH

## Mitu Mathur, Director, GPM Architects and Planners

**Q: What kind of opportunities and threats does Artificial Intelligence present to architects and engineers?**

**A:** Artificial Intelligence (AI) offers architects and engineers unprecedented opportunities to revolutionise architecture and the construction industry. AI-driven automation can streamline design processes, enabling rapid generation and optimisation of innovative solutions facilitating the exploration of countless design alternatives. It offers transformative opportunities in parametric facade design, 3D printing and fabrication, AI prototyping, and form evolution, enhancing creativity, efficiency, and functionality across these domains, thereby revolutionising traditional processes. Advanced simulations and analyses help predict and optimise performance, reducing errors before physical implementation. This predictive capability extends to project management, where AI enhances scheduling and efficiency.

Conversely, the complexity of AI models may hinder understanding and transparency. Security risks, overreliance on technology, and legal liabilities pose additional challenges. Navigating these opportunities and threats requires a thoughtful approach, ensuring that architects and engineers harness the benefits of AI while addressing its potential risks. Continuous education and ethical considerations are crucial for successful integration into their professional practices.

**Q: In Asia, are architects embracing**



Renders for Courtyard by Marriott, Hrishikesh.

**Artificial Intelligence to complement their work? If yes, kindly elaborate and give us a few examples of building projects which have been designed with the help of AI.**

**A:** The integration of AI in architectural practices has been notable, with firms leveraging AI for tasks ranging from design optimisation to project

management. Generative design algorithms have become prevalent, allowing architects to explore many design possibilities efficiently. Projects like the Tencent Seafront Towers in Shenzhen have incorporated AI for energy-efficient design and smart building management in China. The towers use AI algorithms to analyse

**"As AI continues to evolve, it is likely that more architects will explore its potential for pushing the boundaries of architectural creativity and efficiency."**

**– Mitu Mathur**

environmental data and adjust building systems in real time, contributing to energy conservation.

At GPM, we have also been experimenting with advanced digital tools and computational techniques. Under GPM DRL (Design & Research Lab), we have leveraged cutting-edge digital tools and technologies to design and create architectural and urban environments. Using softwares like Grasshopper and Python for analytical data integration such as daylight simulations, weather analysis, wind simulations etc, along with AI generative tools for generating multiple renders for various design options, the entire process of integrated design, sustainability and construction becomes much faster and organised. With a focus on AI, parametric design, generative design, optimisation and simulations, we have been working on creating parametric facades, sustainable design iterations and complex design solutions for many of our ongoing projects, such as interior iterations for Udaipur Airport,

facade designs for Yesvantpur Railway Station, and also generating renders for experience development for hospitality projects like Courtyard by Marriott, Hrishikesh.

These examples underscore the growing trend of architects incorporating AI into their workflows to achieve innovative, sustainable, and technologically advanced designs. As AI continues to evolve, it is likely that more architects will explore its potential for pushing the boundaries of architectural creativity and efficiency.

**Q: In future, is there a probability that Artificial Intelligence will replace architects and engineers? Kindly explain your thoughts.**

**A:** While AI can augment and enhance certain aspects of the design and engineering processes, human involvement is crucial for envisioning and creating solutions sensitive to context, culture, and human experience. Therefore, the more plausible scenario is a collaboration between AI and



Mitu Mathur. Photo credit: GPM

human professionals, where AI tools support and amplify human capabilities, leading to more efficient, innovative, and sustainable outcomes. The future will likely see AI as a valuable assistant, allowing architects and engineers to focus on higher-level thinking and creative aspects of their professions.



Interior iterations for Udaipur Airport.



Facade designs for Yesvantpur Railway Station.

1, 2 & 3: Photos of ongoing projects in India by GPM Architects and Planners using AI generative tools and other advanced digital tools. Image credits: GPM