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Creating Radiation Treatment Plans with Artificial Intelligence

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Developments in cancer treatment are allowing patients with even advanced cancer to live longer and healthier. One of these developments is a new radiotherapy technique that delivers high doses of radiation to sites of cancer, and minimizes the dose to healthy organs. This technique is even being used to treat multiple lesions simultaneously in metastatic cancer patients. The combination of delivering high doses of radiation to multiple sites in the body, sometimes even to the same organ, requires a time and resource intensive planning process to ensure that a given treatment is safe. Therefore, the planning process acts as a bottleneck in the patient's treatment journey, and can potentially lead to treatment delays. In this project, we designed an automated dose prediction model based on recent advancements in generative artificial intelligence that can significantly reduce the time required to create a safe treatment plan.