

The Office of Technology Management

UNIVERSITY OF TEXAS  ARLINGTON

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Cloud-Based Radiation Oncology Treatment Planning System

INVENTOR: Vasant Kearney

TECHNOLOGY NEED

Over a million of people rely on radiotherapy in the US, and this number increases dramatically each year. Each patient receives 29 radiotherapy treatments on average, resulting in a huge demand of radiotherapy technology, especially in radiation oncology treatment planning. A good treatment plan can significantly enhance the efficiency and quality of radiotherapy process. In general, clinicians look for a treatment planning system with features of cloud accessible, easy collaborative and fast computation with inverse planning. However, these features are yet to be feasible and optimized due to the complex nature of the treatment delivery course, and the failure of performing inverse planning by the dose calculation engine. Hence, the high speed computational graphic processing units (GPU) are only limited to stationary machines and are too large to be incorporated into mobile devices. It leads to delay in communication when the multiple clinicians are required to collaborate using the specific stationary machine to conduct the iterative plans.

INVENTION DESCRIPTION/SOLUTION

Researchers have developed an entirely cloud-based radiation therapy treatment planning system. This technology offers a collaborative user treatment planning and utilizes a novel information synchronization infrastructure. It relieves the network speed bottleneck, as well as the delay in communication by allowing users to collaborate with their own mobile devices, like tablets, in a cloud system. It also supports the inverse planning by allowing clinicians to specify a desire treatment result to increase the quality of the treatment plan.

APPLICATIONS

- Radiation Oncology Treatment Planning System

KEY BENEFITS

- Cloud-Based System
- Novel Information Synchronization Infrastructure
- Real-time Collaboration Capability
- Inverse Treatment Planning
- High Network Speed
- Fast Intensity Modulated Radiotherapy (IMRT) Computation
- Mobile Device Accessible

STAGE OF DEVELOPMENT

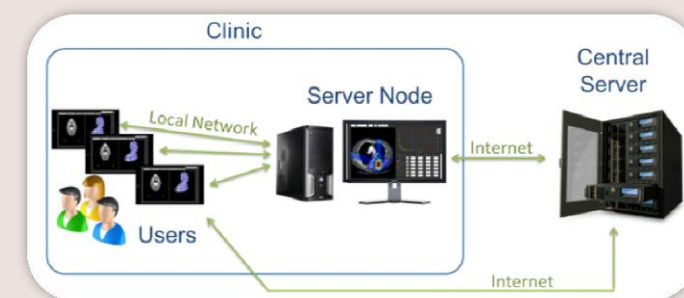
Prototyped

INTELLECTUAL PROPERTY STATUS

Provisional Patent Filed

REFERENCE

[NimbleTherapy](#)



More about the Inventor:
[Vasant Kearney](#)

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