



Prevention of mechanical collisions during radiotherapy treatment planning in RayStation

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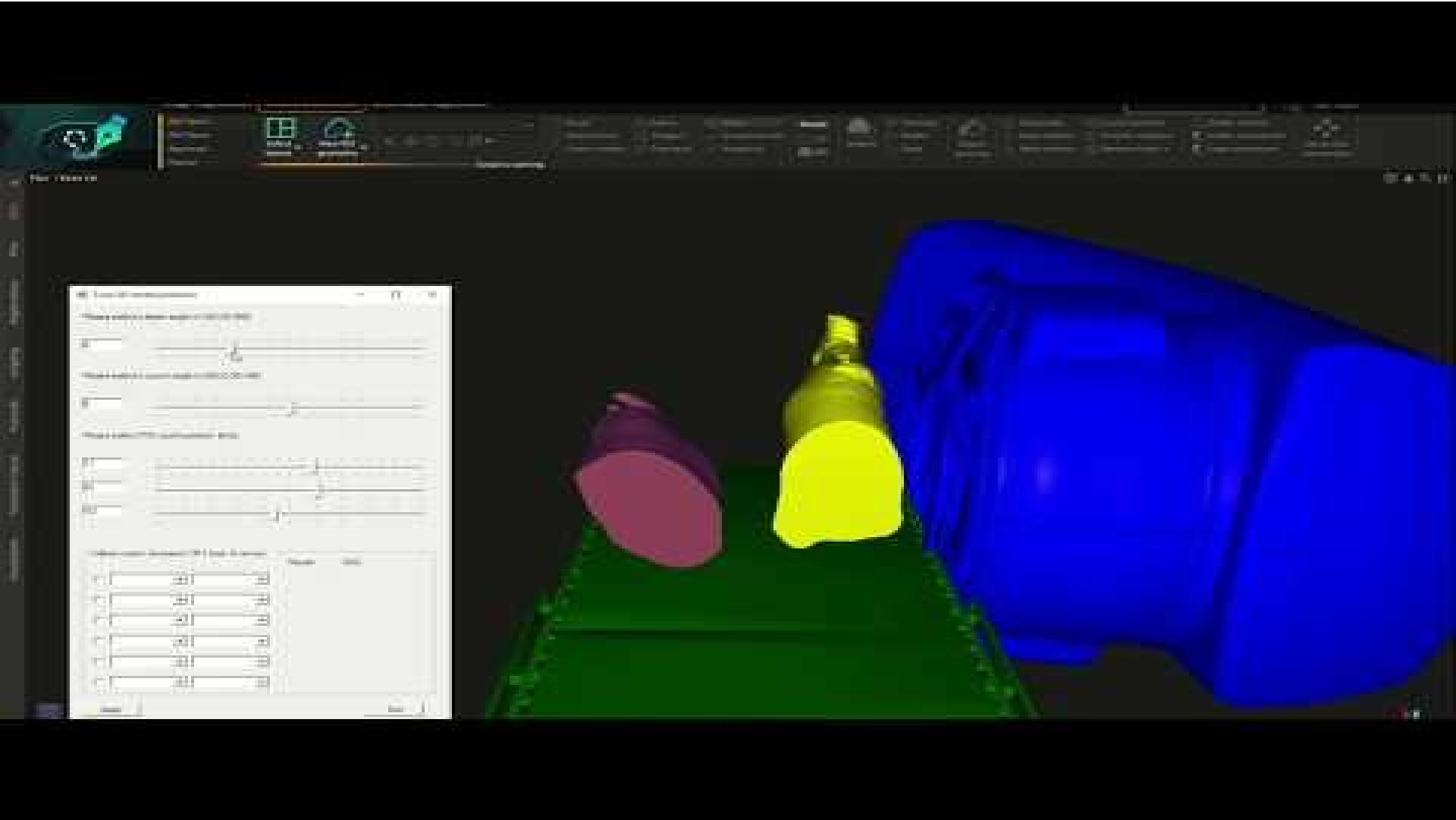
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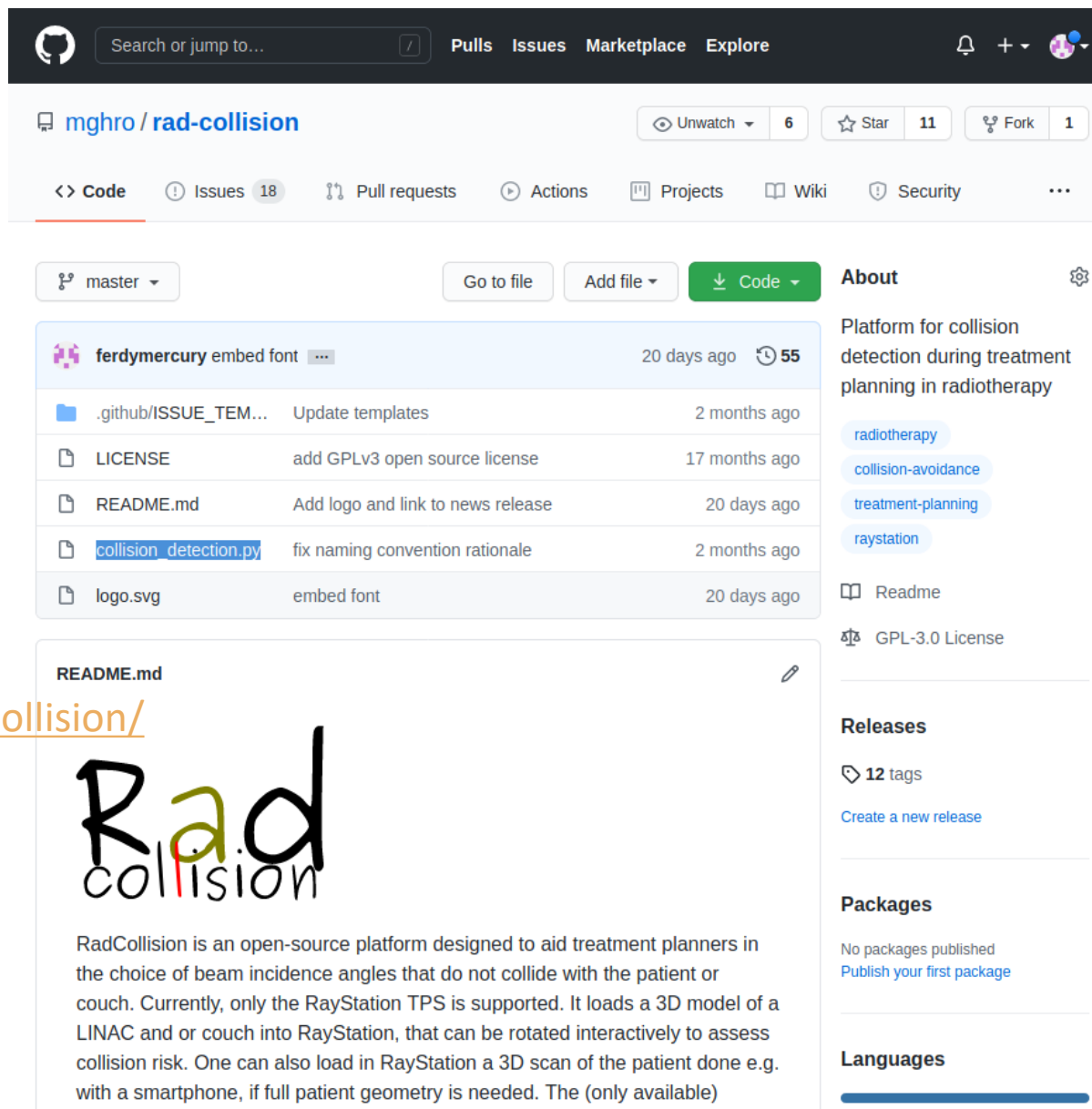


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- Radiotherapy: useful to spare normal tissue using several beam angles, but common to encounter collisions gantry / couch / patient
- Several tools published in last three decades to prevent and predict collisions
 - However, no standardized solution is available
- At MGH, dosimetrists choose beam angles according to measurements, rough estimates and experience, to avoid collisions
 - Plan feasibility is then checked in a dry run at the treatment room






The screenshot shows the GitHub repository page for `mghro/rad-collision`. The repository has 6 pulls, 11 stars, and 1 fork. The main content area displays a file list for the `master` branch, including `.github/ISSUE_TEMPLATE`, `LICENSE`, `README.md`, `collision_detection.py`, and `logo.svg`. The `README.md` file is expanded, showing the repository's logo and a description of the project. The right sidebar contains sections for **About**, **Releases**, and **Packages**.

File	Description	Time
<code>ferdymercury</code>	embed font	20 days ago
<code>.github/ISSUE_TEMPLATE</code>	Update templates	2 months ago
<code>LICENSE</code>	add GPLv3 open source license	17 months ago
<code>README.md</code>	Add logo and link to news release	20 days ago
<code>collision_detection.py</code>	fix naming convention rationale	2 months ago
<code>logo.svg</code>	embed font	20 days ago

README.md



RadCollision is an open-source platform designed to aid treatment planners in the choice of beam incidence angles that do not collide with the patient or couch. Currently, only the RayStation TPS is supported. It loads a 3D model of a LINAC and or couch into RayStation, that can be rotated interactively to assess collision risk. One can also load in RayStation a 3D scan of the patient done e.g. with a smartphone, if full patient geometry is needed. The (only available)

<https://github.com/mghro/rad-collision/>

- Script
- Setup instructions

- Get 3D models of your machine from vendor
- Cleanup and convert to STL format (Meshlab)
- Potentially store in a network server HDD
- Access <https://github.com/mghro/rad-collision/>
- Download collision_detection.py
- Adapt the path to your STL files in the text file
- Import it into the RS scripting database
- Click Play!

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- This work was supported in part by the Federal Share of program income earned by Massachusetts General Hospital on C06-CA059267, Proton Therapy Research and Treatment Center.
- <https://physicsworld.com/a/open-source-software-detects-potential-collisions-in-radiotherapy-plans/>
- You for your attention, and for your potential collaboration via GitHub <https://github.com/mghro/rad-collision/> in expanding features or fixing issues