


## Using 3D Slicer for image-guided therapy research

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| Commercial application  | Research application  |
|---|---|
| Fully optimized for specific purposes   | Very flexible, fits many purposes, easy to customize/extend     |
| Simple, easy to use   | Complex, may be difficult to use                                |
| Fast, robust  | Might be slower, might have robustness problems                 |
| Uses closed source, in-house developed and maintained libraries                             | Uses state-of-the-art, actively developed open source libraries |
| Thoroughly tested, fully documented (fully FDA, CE compliant + as high quality as possible) | Tested & documented as reasonable (optimized for quality only)  |



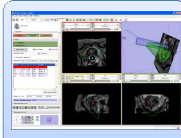
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|   |   |
|---|---|
| <h3>Without a strong application platform</h3> <ul style="list-style-type: none"> <li>• Completely new software was written for each procedure/device</li> <li>• Each application was developed from ground up</li> <li>• Significant work investment to integrate new, advanced algorithms</li> </ul> <p>Quick start. Huge waste of time/money/effort overall.</p> | <h3>With 3D Slicer as application platform</h3> <ul style="list-style-type: none"> <li>• New software module for each procedure, common module for several devices</li> <li>• Applications are built on top of 3D Slicer</li> <li>• Many new, advanced algorithms are deployed on 3D Slicer</li> </ul> <p>Huge investment at the beginning: learning. Minimal wasted efforts.</p> |
|---|---|



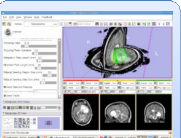
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### Image-guided therapy applications in Slicer 3.6



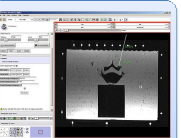
**ProstateNav**

- Prostate biopsy
- Used on patients



**NeuroNav**

- Neuro navigation
- Used on patients



**PerkStation**

- Spine needle insertion with AR display
- Cadaver studies


**LiverAblation**

**IGTPlanning**

**IGTNavigation**

**MRABlation**


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## Generic IGT workflow steps


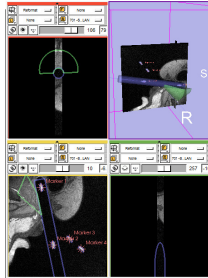
- **Calibration:** register patient/tools/image acquisition device
- **Planning:** import and visualize data, create plan
- **Targeting:** perform the planned intervention with guidance
- **Verification:** evaluate, archive results




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## Calibration

- Import images (DICOM and other formats)
- Import object models (tools, etc.)
- Mark fiducials
- Register (using image, fiducial points, lines, trackers)



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