



Neuroimaging in the Browser using the X Toolkit

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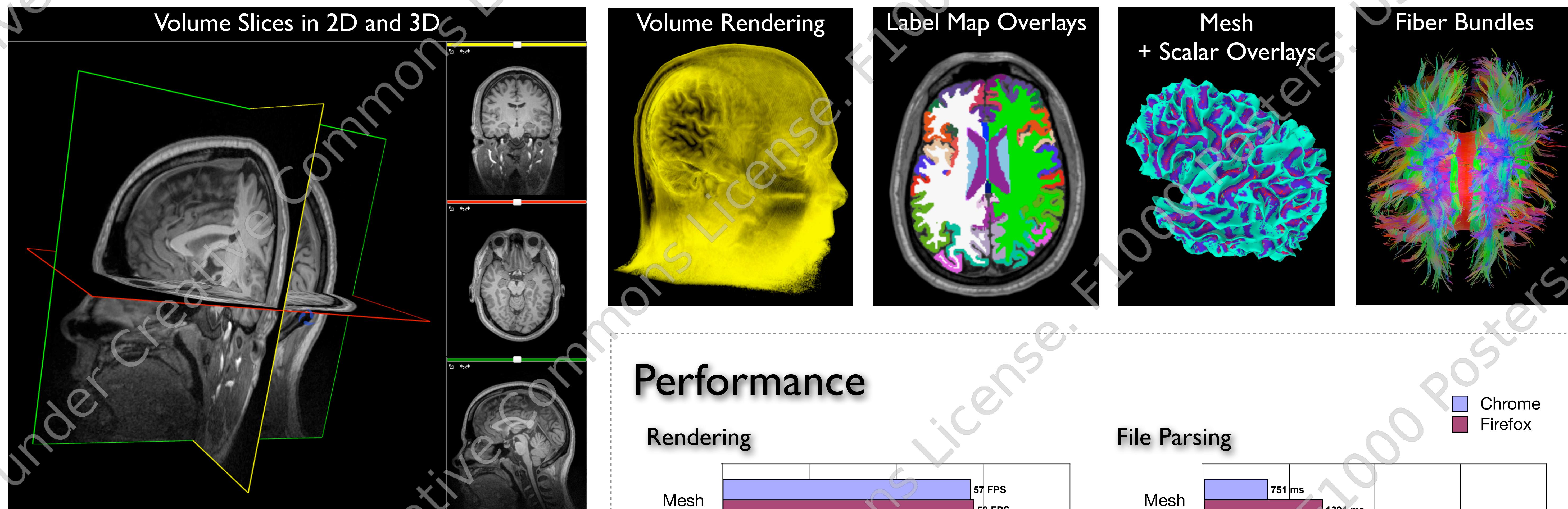


Technologies



- ✓ Scientific Visualization in 2D/3D
- ✓ Easy-to-use API
- ✓ Demos, Lessons, Documentation
- ✓ Fully tested
- ✓ Open Source (MIT License)

Features



Example Usage

```
// create a new 3d renderer
var r = new X.renderer3D();
r.init();

// load a .NII volume
var head = new X.volume();
head.file = 'head.nii';
// activate volume rendering
head.volumeRendering = true;
head.lowerThreshold = 20;

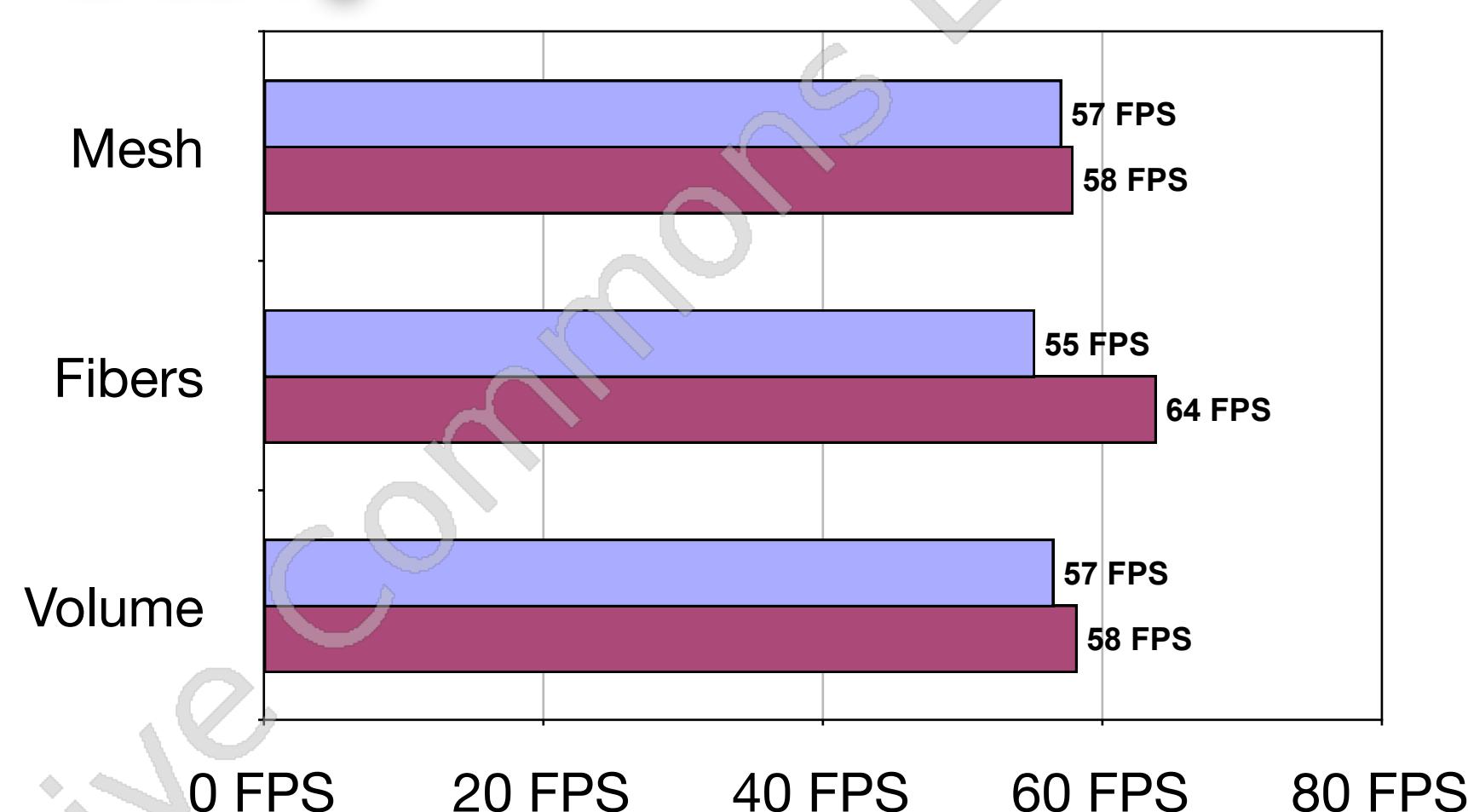
// add the volume
r.add(head);

// .. and render it
r.render();

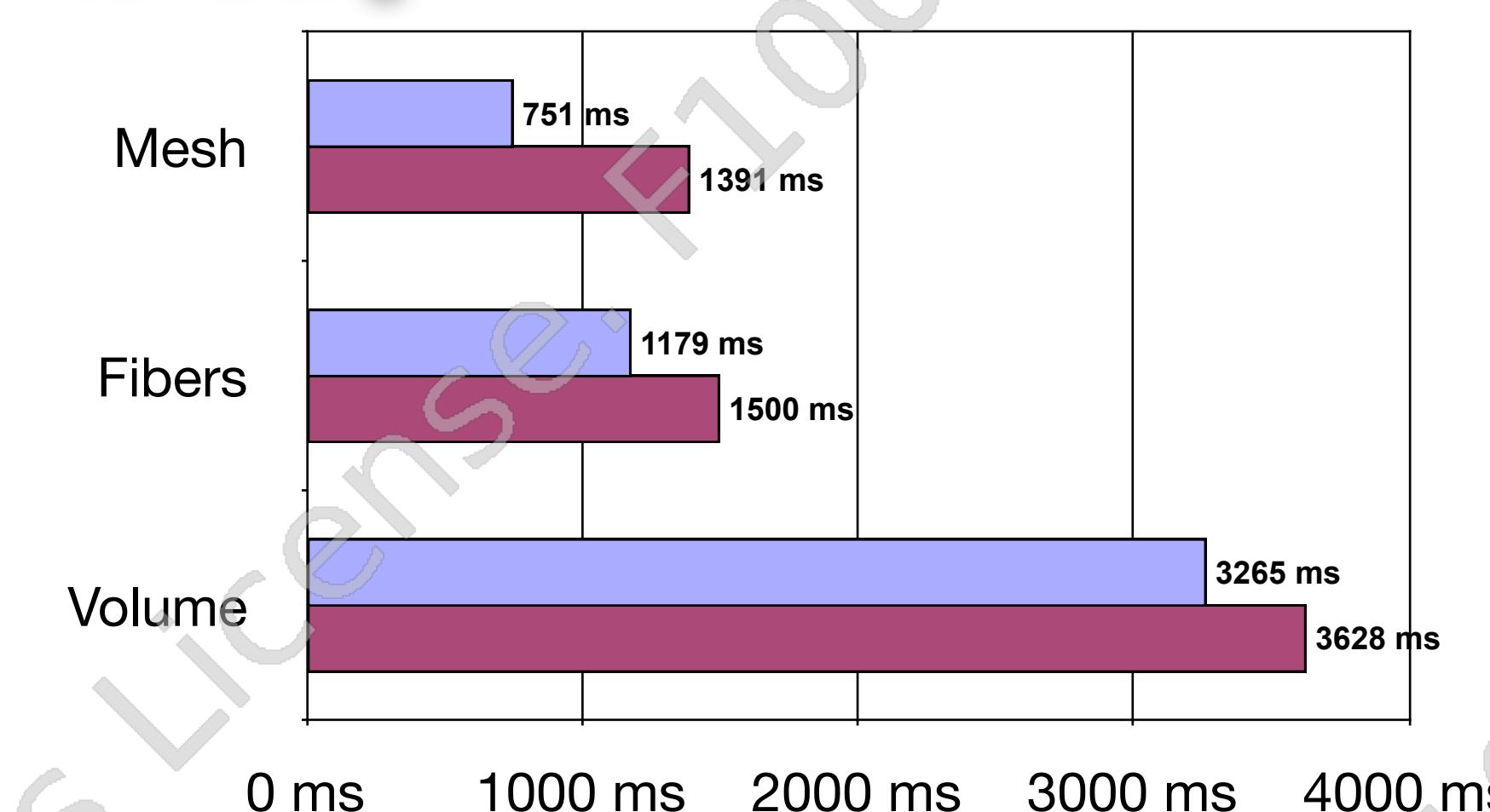
r.onRender = function() {
    // spin the head
    r.camera.rotate([1,0]);
}
```

Performance

Rendering



File Parsing



| Type | File Size | Objects | Vertices | Voxels | Triangles | Lines | 2D Textures |
|--------|-----------|---------|----------|---------|-----------|-------|-------------|
| Mesh | 6.38 MB | 1 | 810457 | n/a | 270152 | n/a | n/a |
| Fibers | 6.89 MB | 1 | 1124727 | n/a | n/a | 20843 | n/a |
| Volume | 19.7 MB | 1308 | 9161 | 9843123 | 1308 | 2617 | 654 |

Characteristics of the used data sets averaged over 10 for each type. Not applicable measures are marked as 'n/a'.

File Formats

- DICOM
- NIfTI
- MGH/MGZ
- NRRD
- VTK PolyData
- Freesurfer Meshes
- STL
- TrackVis

<http://goXTK.com>
<http://slicedrop.com>

* Browser Support:

- ✓ Google Chrome
- ✓ Mozilla Firefox
- ✓ Safari
- ✓ Opera Next

Browser Ponies from
<http://paulirish.deviantart.com/favourites/51528712>

References

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- [2] Ginsburg D. et al., Realtime Visualization of the Connectome in the Browser using WebGL. 4th INCF Congress of Neuroinformatics 2011. doi: 10.3389/conf.infn.2011.08.00095
- [3] Kelc R., Zygoty Body: A New Interactive 3-Dimensional Didactical Tool for Teaching Anatomy. WebmedCentral ANATOMY 2012;3(1):WMC002903
- [4] WebGL Frameworks, Khronos Group 2012, http://www.khronos.org/webgl/wiki/User_Contributions#Frameworks