

# Magic Eye: An adaptive 2D-3D Stereo Viewer

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Final Presentation

Computer Aided Medical Procedures (CAMP)

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## Stakeholders

- Project partner
  - FRAMOS[1]
  - IFL[2]
- Supervisor
  - Benjamin Busam
- Project Manager
  - Aleksandr Bulankin
- Development team
  - Aleksandr Bulankin



[3]

- [1] <https://www.frames.com/> (July 23, 2017)
- [2] <http://campar.in.tum.de/Chair/IFL> (July 23, 2017)
- [3] <http://www.pragmetric.com.au/> (July 23, 2017)

## Motivation

- 3D perception is an integral part of many surgical interventions
  - User is bound to the display -> can not see patient live
  - Limited interaction with the medical team



Innovative OR workplace [1]

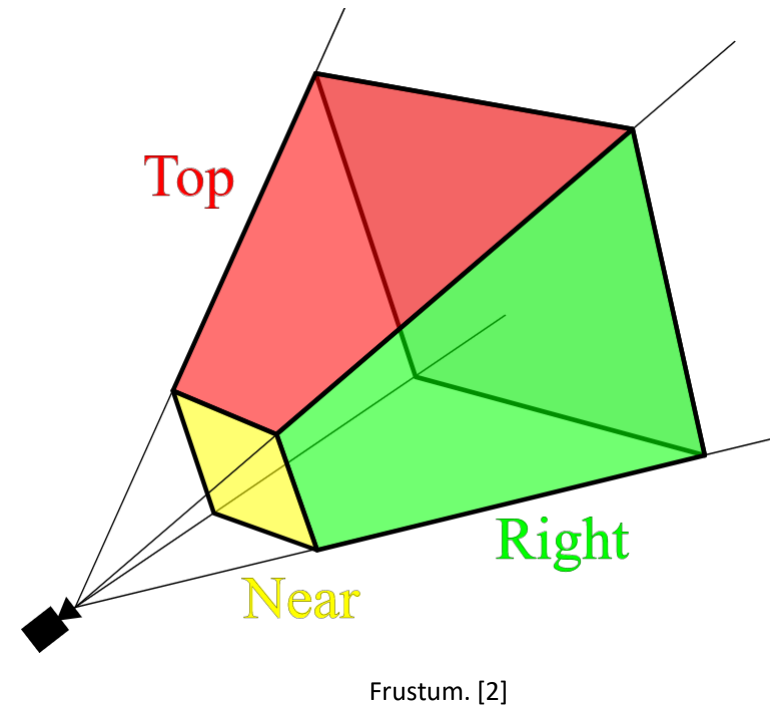
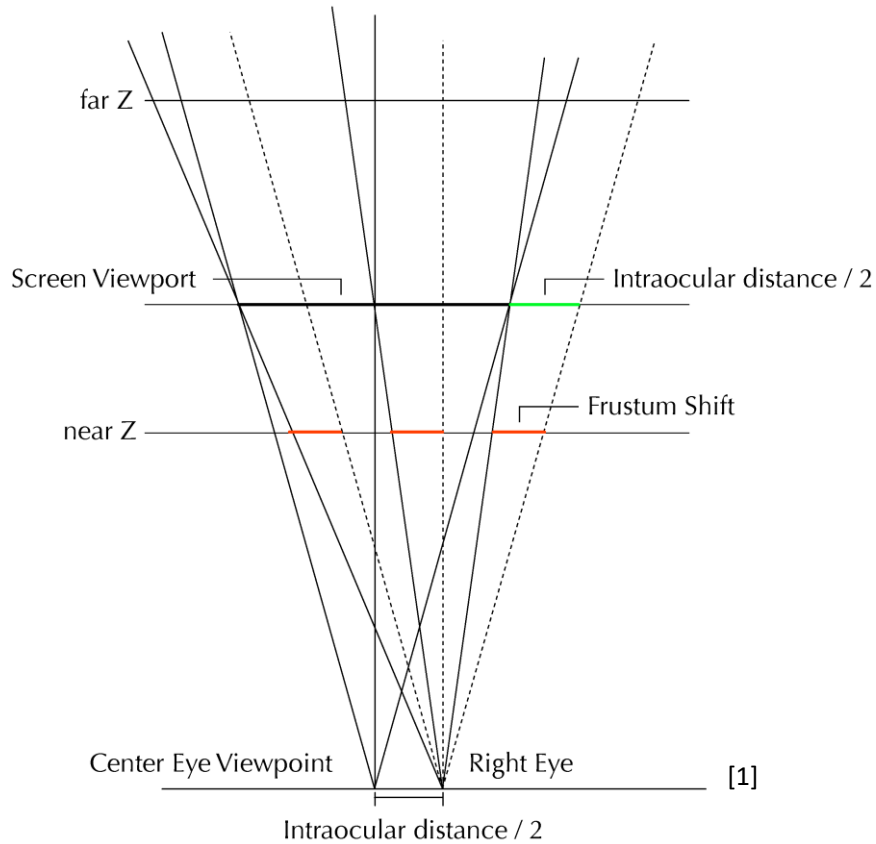


Head-mounted display (HMD) [2]

- [1] <http://www.worldhealthdesign.com/operating-room-architecture.aspx> (July 23, 2017)
- [2] <http://campar.in.tum.de/Chair/TeachingSs10ARinMedicine> (July 23, 2017)






## How it works

- Designing and implementing a free-view 2D-3D stereo viewer

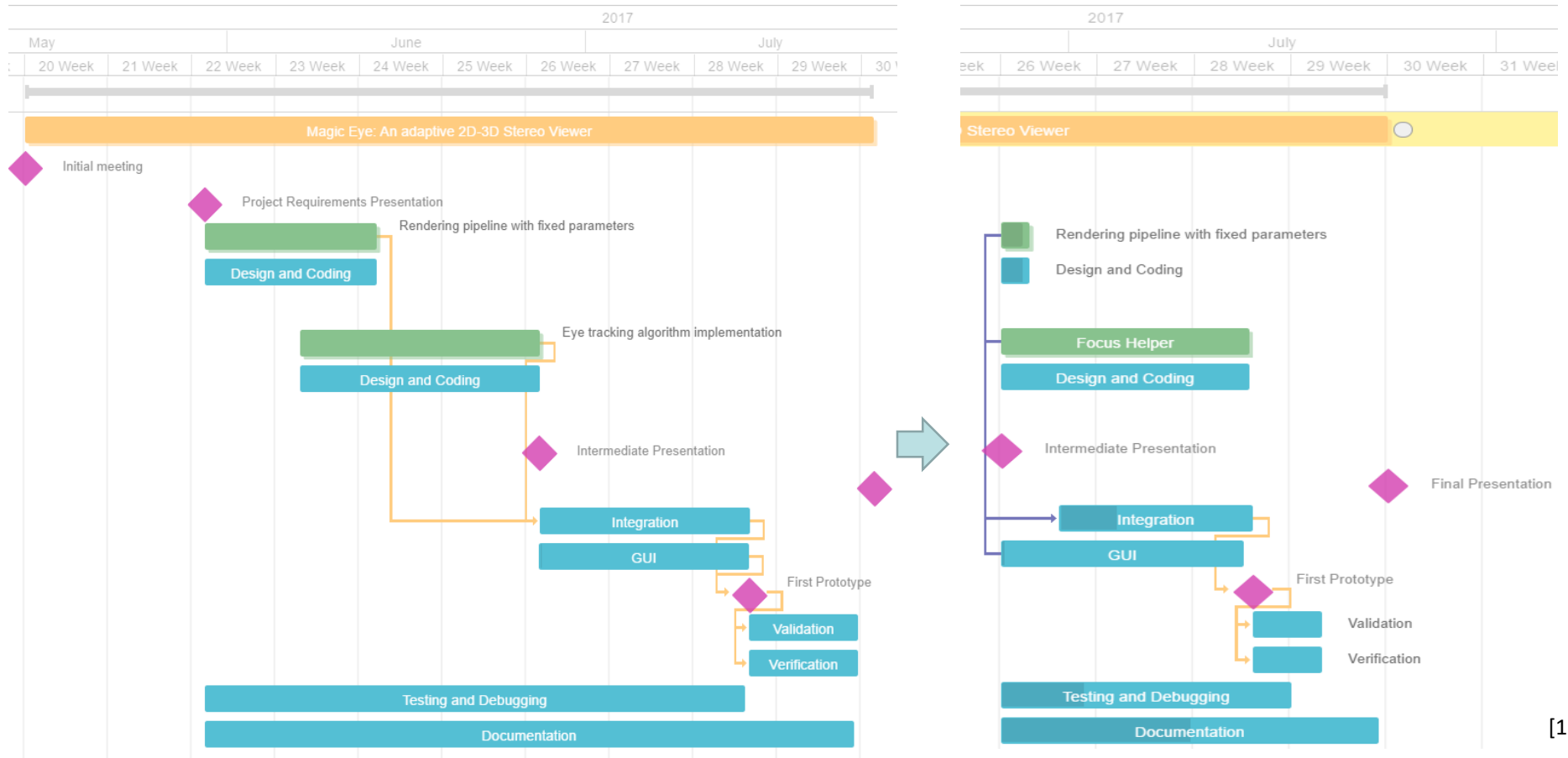


- [1] <https://www.packtpub.com/application-development/opengl-data-visualization-cookbook> (July 23, 2017)
- [2] <https://upload.wikimedia.org/wikipedia/commons/0/02/ViewFrustum.svg> (July 23, 2017)

## Tasks

- Implement a rendering pipeline from a 3D scene to stereo images 
- **Implement eye tracking algorithm**
- **Implement GUI**
- Testing and Debugging 
- Image fusion method evaluation 
- Documentation and Report 
- Prototype 

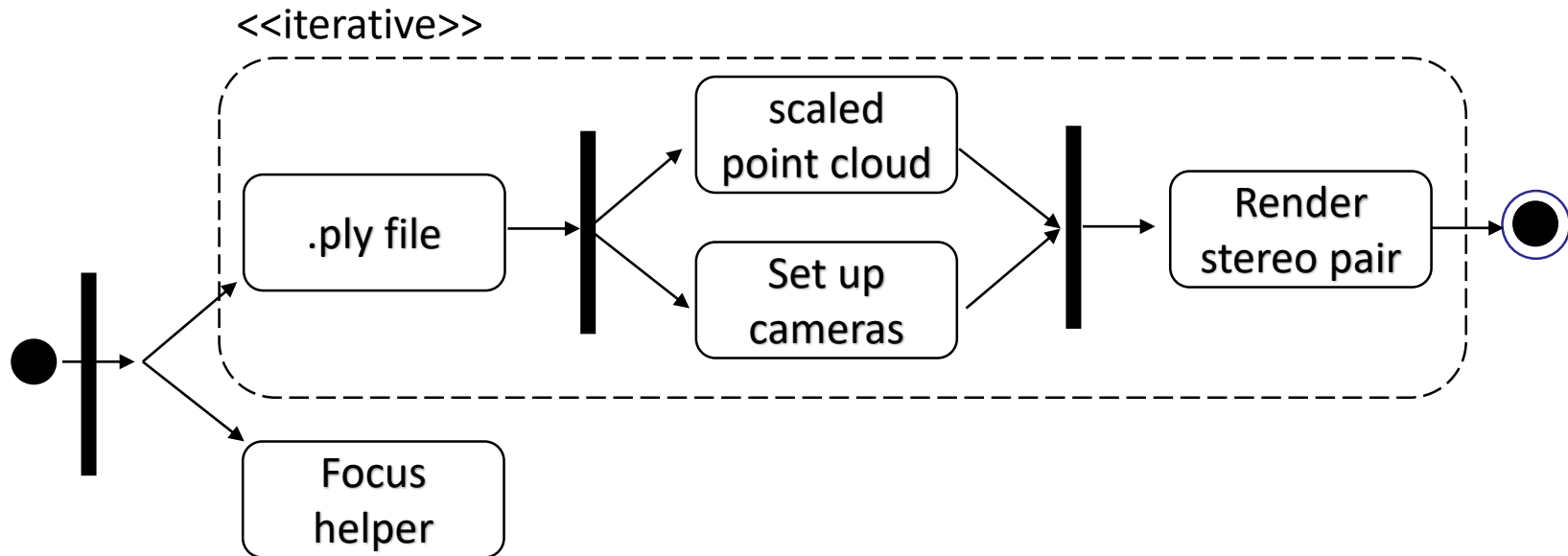
# Workflow



[1]

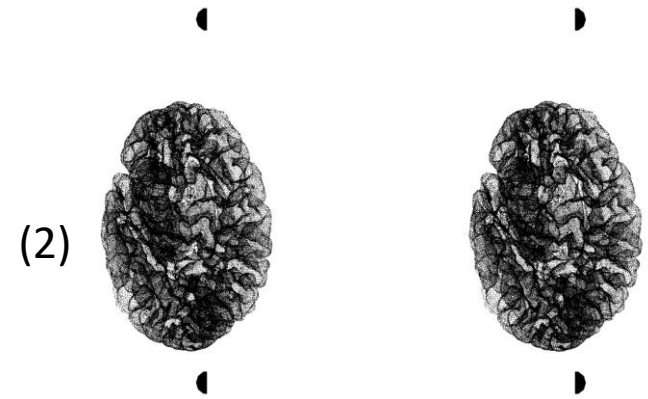
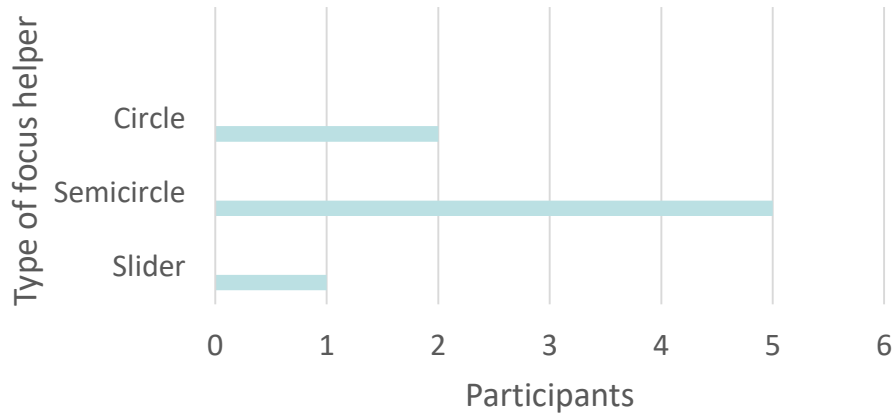
- [1] created with [GanttPRO](#)

## Activity diagram



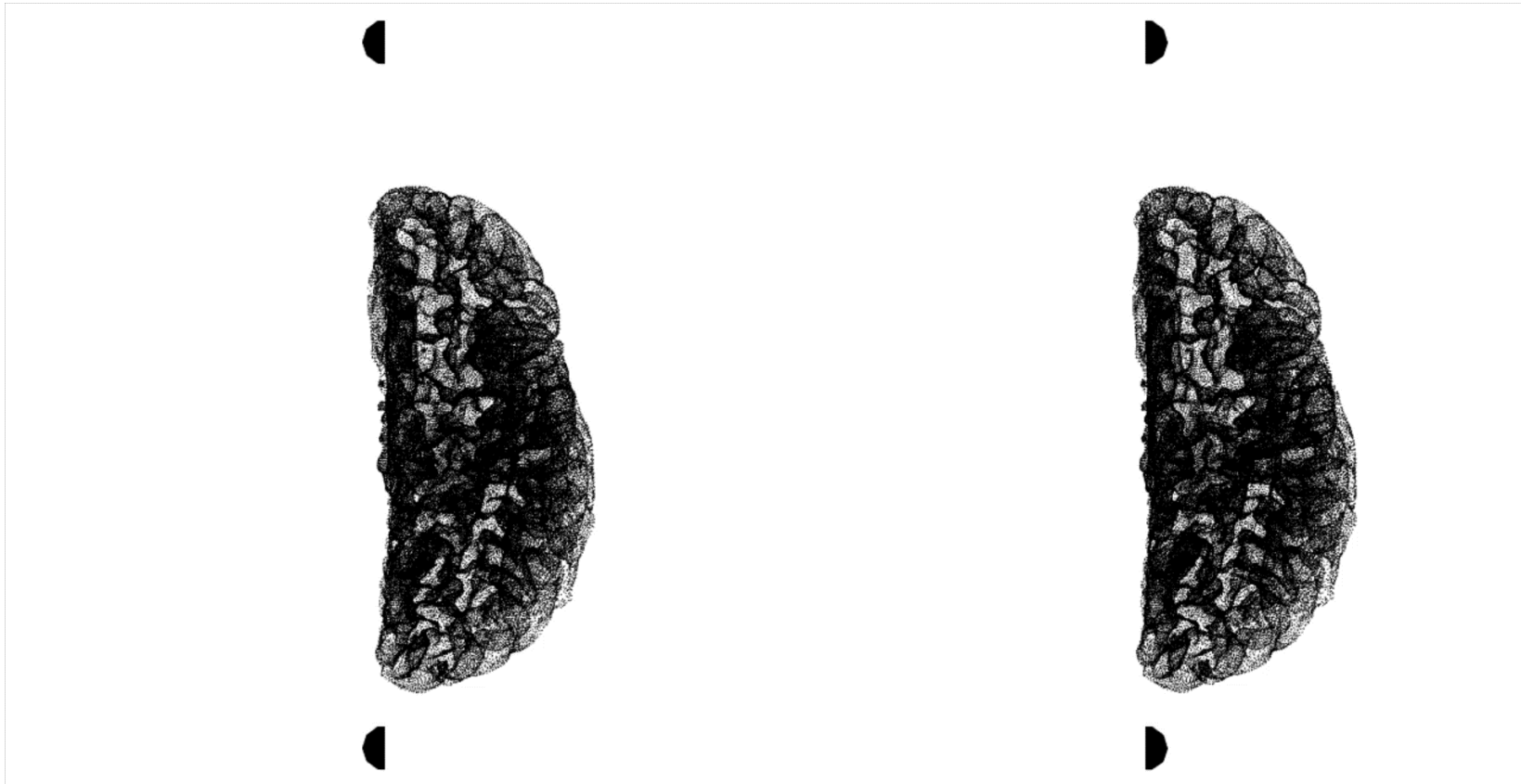
# Focus Helper

Quiz





## How it looks like...



## Possible improvements



[2]



[1]

- [1] <https://blogs.msdn.microsoft.com/pakistan/2013/01/26/part-1-introduction-to-microsoft-kinect/> (July 23, 2017)
- [2] <https://www.cloudflare.com/img/products/analytics/icon-real-time-traffic.svg> (July 23, 2017)

# Questions?



[1]

- [1] <http://goboston2030.org/the-question-campaign/> (May 27, 2017)