

# SharedVTK

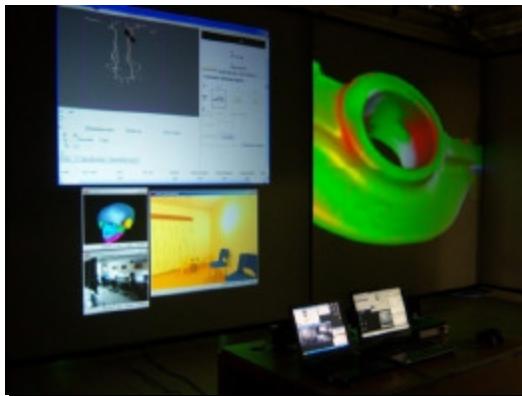
IMAGINE, Visual Computing Research Group  
Access Grid Retreat 2008

# OUTLINE

- Introduction
- Background
- Application description
- SharedVTK in action
- Work in process
- Next Step
- Questions

# INTRODUCTION

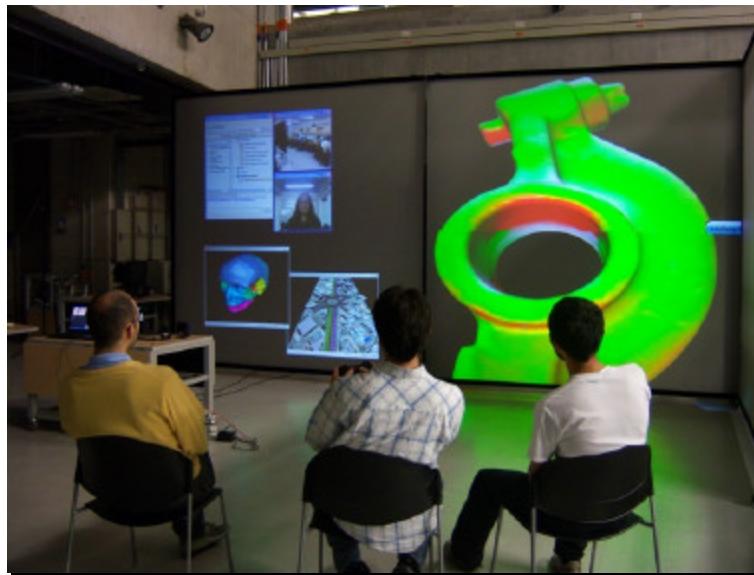
- Our research group (**IMAGINE**) is a collaborative partner in research with:
  - CREATIS (Centre de Recherche et d'Applications en Traitement de l'Image et du Signal. Lyon, France)
  - University of Alberta (Canada)
  - TELECOM-Paris (TSI est Treatment de Signal et des Images. Paris, France)



Visualization & Autonomous Systems Lab.

# INTRODUCTION

- Our interest research areas:
  - Computer aided architectural design
  - VR interaction techniques
  - BioEngineering (Medical teaching and training)



Visualization & Autonomous Systems Lab.

# BACKGROUND

- Bogotá
  - The Golden Lion Award, 2007 (La Biennale di Venezia)
  - Urbanism projects:
    - The park development program
    - The Bus Rapid Transit system, TransMilenio.
    - The libraries network
  - A dynamic city, center of architecture projects



Gabriel García Márquez - Culture Center [1]

# BACKGROUND

- IMAGINE
  - Counseling with immersive visualization / decision-making support system.
    - Bogota's metro / airport
    - New building at UNIANDES campus



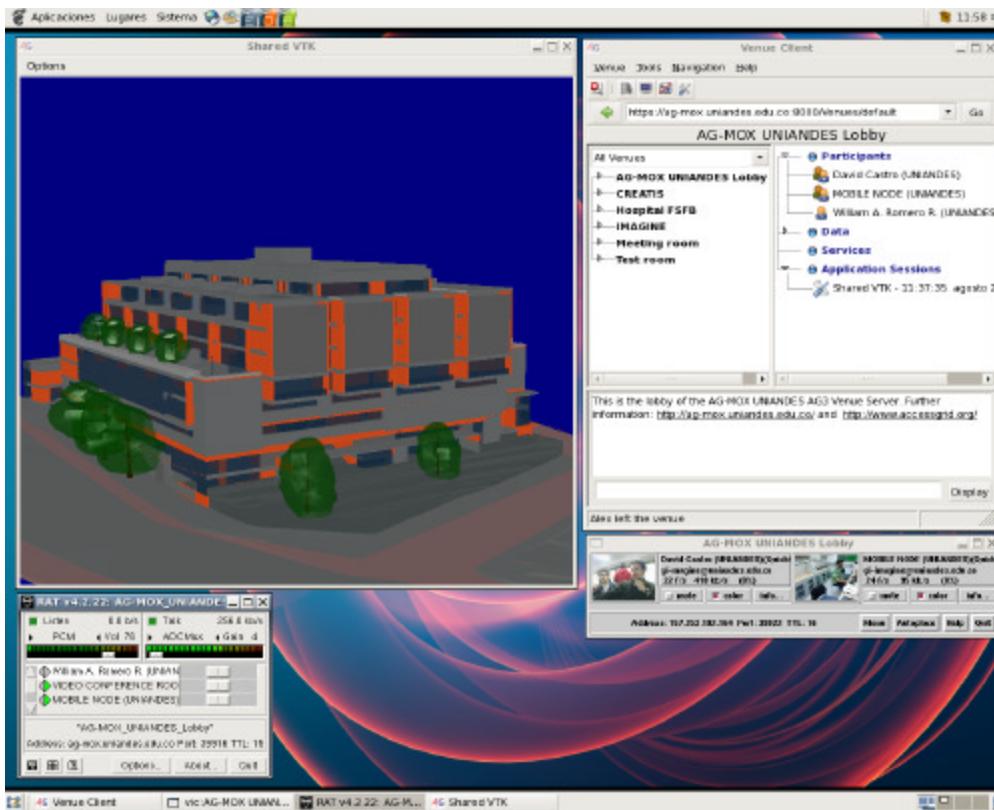
3D landscape of university campus

## Application description

- Based on *Visualization ToolKit*, by Kitware
- VTK was chosen because we in our group (and our partners) had previous experience on it.
- Requirement
  - VTK 5.0.2 or later (Python wrapper)
- The application only sends view point observer information.
- Developed by Eddy Díaz and William A. Romero R.

# Application description

- Empower AG users with an interactive visualization of 3D objects



SharedVTK into a AG session



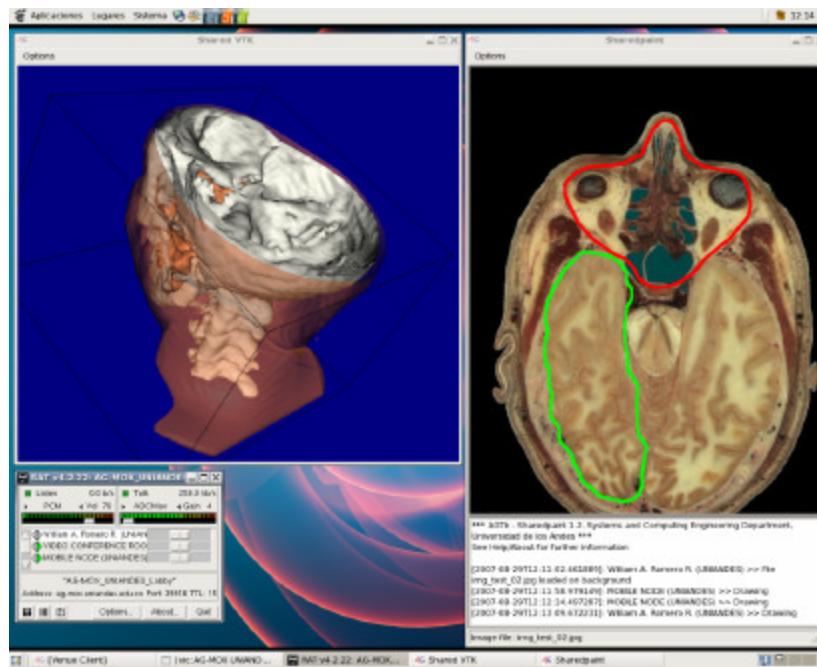
Shared visualization of 3D scenes/objects



Mario Laserna building – UNIANDES [II]

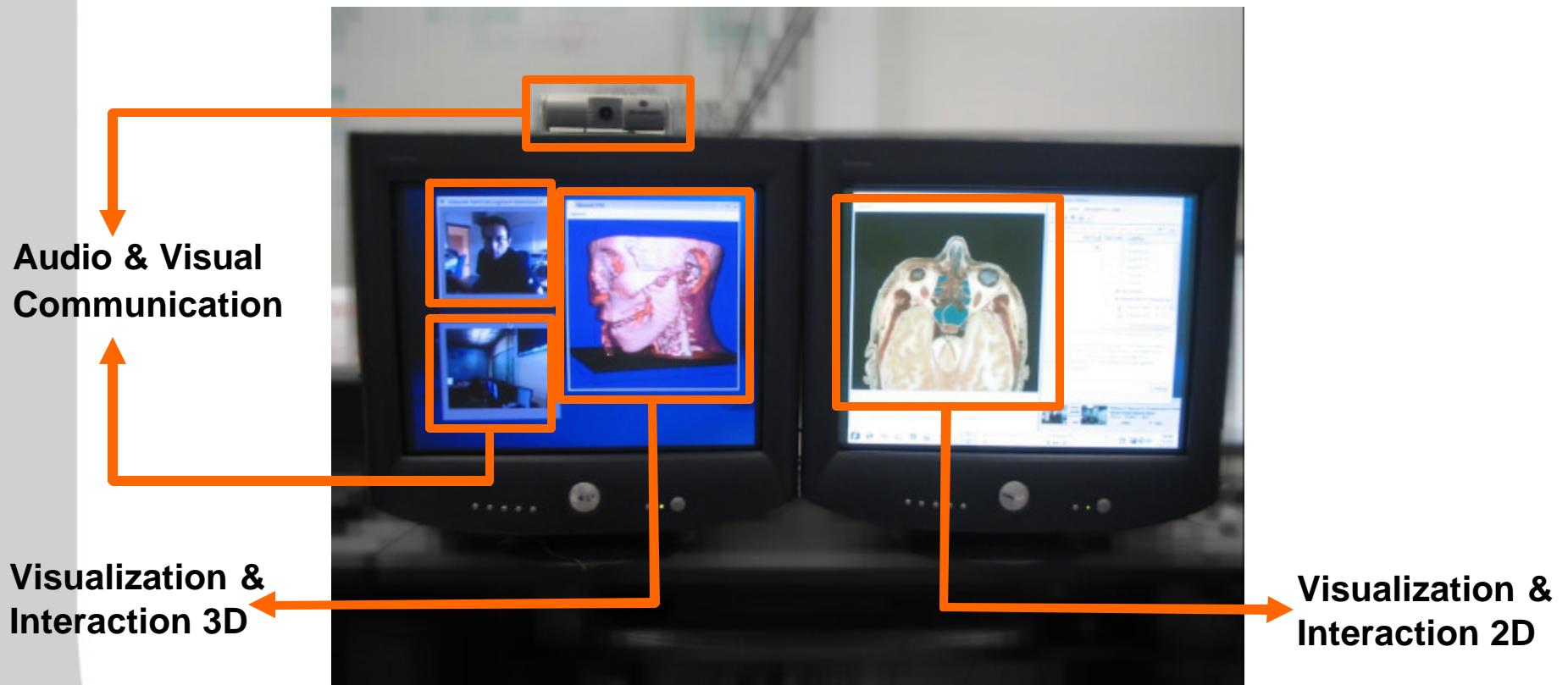
# Application description

- It is possible to extend the functionality to any other field:
  - Volume rendering from 2D cross-section images for medical diagnosis.



SharedVTK with SharedPaint for 3D & 2D visualization

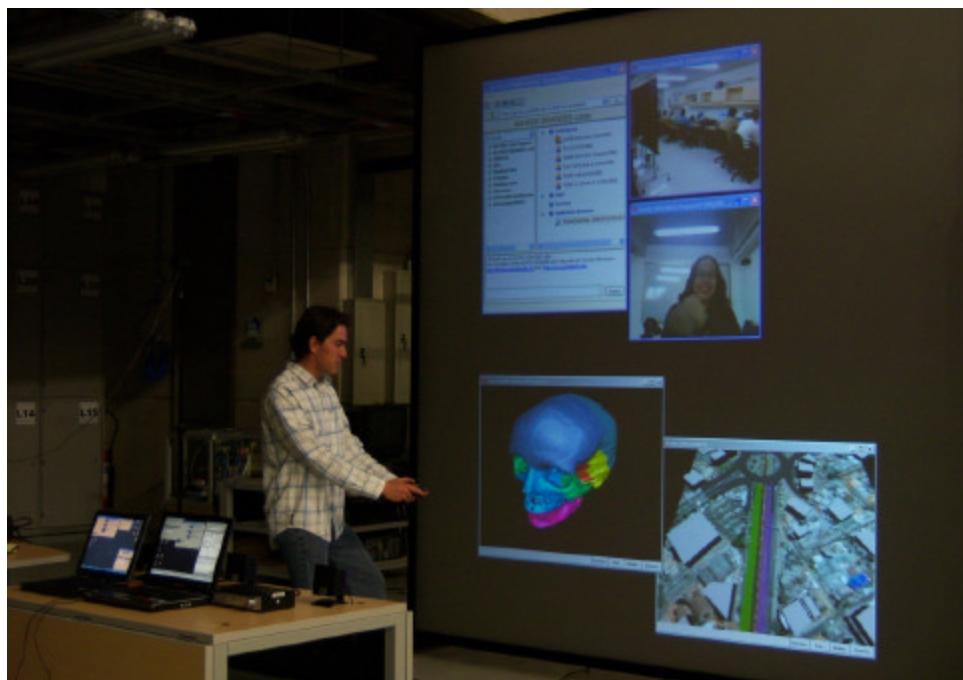
## SharedVTK in action



Test session with CREATIS Lab.

## Work in process

- We are working on:
  - Usability tests with end users – Architects
  - Improve human-machine interaction techniques
- 3D editing capabilities, draw on the 3D scene.



AG Test session - Joystick

## Next step

- Integration with interaction devices
- Since we have Eclipse +PyDEV as development framework, we are working on Model-Driven approach to develop Shared Applications.
- We are willing to accept suggestions !!!

## Further information

- Professors:
  - José Tiberio Hernández, Ph.D. e-mail: [jhernand@uniandes.edu.co](mailto:jhernand@uniandes.edu.co)
  - Pablo Figueroa, Ph.D. e-mail: [pfiguero@uniandes.edu.co](mailto:pfiguero@uniandes.edu.co)
- Development Leader:
  - William A. Romero R., e-mail: [wil-rome@uniandes.edu.co](mailto:wil-rome@uniandes.edu.co)
- SharedVTK home page:
  - <http://ag-mox.uniandes.edu.co/dev/sharedvtk/>
- AG-MOX Universidad de los Andes
  - <http://ag-mox.uniandes.edu.co>

## Picture references

- [I] <http://flickr.com/photos/paranoicafierita/2446410207/>
- [II] <http://renovacioningenieria.uniandes.edu.co/>

## References

GONZALEZ, D. A. *AGJuggler: an architecture for virtual reality within a collaboration environment*. Purdue University, West Lafayette, IN 47907, USA, 2005.

Oliver Otto, Dave Roberts, Robin Wolff. *A review on effective closely-coupled collaboration using immersive CVE's*. Virtual Reality Continuum And Its Applications. Proceedings of the 2006 ACM international conference on Virtual reality continuum and its applications.