XR in Mining Education

Faculty of Engineering, Built Environment and Information Technology

Make today matter
www.up.ac.za
Implementation @
Department of Mining Engineering

• Teaching facilities
• Applications
• Research
Teaching facilities

3D Cinematic Theatre
- Active 3D visuals
- 8m x 4m Widescreen
- Visualization and Presentation
Teaching facilities

**Immersive Theatre**
- 10m Diameter Cylinder
- 360° 3D Display
- Modules
  - Mining Methods
  - Metallurgical / Beneficiation Plant
  - Rehabilitation Plan
  - 360-3D Video player

- Immersive experience
Teaching Applications

Mobile AR
- 3D models linked to study notes
- 3D models on web portal
- Unique QR code scanned by mobile device
Teaching Applications

Geological Hazard Identification

- Tethered VR application
- Full room scale tracking
- Randomized geotechnical features
- Training in a virtual museum

See the video for more detail -> https://youtu.be/jYUIMzj8IcE
Teaching Applications

Checklist Training
• Mobile VR application
• Explore & complete the checklist
• Randomizes the state of the checklist items

See the video for more detail -> https://youtu.be/V77j8mFOAFs
Teaching Applications

**Interactive Blast Wall**
- Simulation like tunnel
- Record blast hole positions
- Timing of blast holes
- Post blast analysis and fracturing patterns

- Assess marking accuracy and timing
Teaching Applications

**Scenario Training**
- Branching narrative
- Present consequence of discussion
- Teach – Learn – Unlearn – Relearn

**360 In-Video Assessment**
- Mobile VR application
- Easy creation of quizzes by facilitator
- Web based

See the video for more detail - [https://youtu.be/Vmeng-xDvkA](https://youtu.be/Vmeng-xDvkA)