The advent of low energy-consumption Graphics Processing Units (GPUs) has boosted the graphics capabilities of mobile devices, opening the door to the development of interactive 3D applications which were inconceivable just some years ago. Mobile device manufacturers have rapidly adopted this new hardware, and the market is demanding new applications featuring advanced 3D graphics and interactive virtual worlds. This scenario opens a wide and interesting research area. Virtual reality applications, until now limited to desktop computers, now can take full advantage of the unique attributes provided by mobile computing: ubiquity, context-awareness, etc. However, as applications require handling larger and more complex 3D scenes, more intelligent and power-efficient techniques will be required. Also, the nature of handheld devices arises new unprecedented usability issues. The small display sizes, coupled with the limited input technologies, motivate the study of new ways to interact with the 3D applications.

The goal of this theme issue is to investigate the implications of adopting 3D graphics and virtual environments in the field of mobile computing. It seeks original papers that present current research efforts and useful applications that employ 3D graphics with particular focus on addressing the unique features of mobile devices.

Research papers, state-of-the-art surveys, design proposals and reports on practical experience are welcome. Authors should consider the practical application of the proposed techniques through user studies, experiments, or systematic comparisons with other approaches already in practice.

Topics

Topics of interest include, but are not limited to:

- Applications and case studies.
- System design, implementation, and evaluation.
- Applications related to specific fields (health, etc.).
- Energy-aware graphics systems.
- Software architectures.
- User interfaces and interaction techniques.
- Visualization on small displays.
- 3D maps on mobile devices: geovisualization, exploration, query issues, location-based services, etc.
- Mobile gaming.
- Mobile serious games.
- Collaborative virtual environments.
- Augmented reality.

Submissions

Submissions should be prepared according to the author instructions available at the journal homepage: http://www.springer.com/computer/hci/journal/779
All papers will be rigorously reviewed based on originality, high scientific quality, organization and relevance to this special issue.

Manuscripts must be submitted as a PDF to the Easychair submission system: https://www.easychair.org/conferences/?conf=pucmob3d2012

More information available at http://mobile3d.ujaen.es

Key dates

- Submissions due: March 1, 2012.
- Author notification: May 1, 2012.
- Final versions due: June 1, 2012.
- Final decision: 1 July, 2012.
- Publication of special issue: 4Q in 2012.