

# Marsbrowsing

Roy G. Biv, Ed Grimley, *Member, IEEE*, and Martha Stewart

Fig. 1. In the Clouds: Vancouver from Cypress Mountain. Note that the teaser may not be wider than the abstract block.

**Abstract**—

**Index Terms**—Radiosity, global illumination, constant time

## 1 INTRODUCTION

1. Visualizing space data is important because its expensive
2. There exists a vast amount of data from Mars orbiters
3. Missing spatial understanding from looking at pure images
4. Contextualization of scientific data (being able to show satellites in the same context as surface features), (domes, vr headsets, etc)
5. Stereoscopic reconstruction from multiple image passes
6. What datasets are available (Viking, MOLA, CTX, HiRISE) and whats their resolutions
7. How can this be applied to other planets
8. A system for enabling future research thati s correctly contextualized
9. What is the science question // What is the point of this

Length: About 1 page

## 2 RELATED WORK

1. the book
2. terrain renderer
3. 3d reconstruction from images (stereoscopic and structure-from-motion)
4. GDAL
5. “virtual presence” systems
6. What else?

Length: About 1 page

Note: The page limit was increased to 9+2 pages this year (= 9 pages of manuscript, 2 pages of references). So we should make use of this and cite the hell out of everything that’s related

- 
- Roy G. Biv is with Starbucks Research. E-mail: roy.g.biv@aol.com.
  - Ed Grimley is with Grimley Widgets, Inc.. E-mail: ed.grimley@aol.com.
  - Martha Stewart is with Martha Stewart Enterprises at Microsoft Research. E-mail: martha.stewart@marthastewart.com.

Manuscript received xx xxx. 201x; accepted xx xxx. 201x. Date of Publication xx xxx. 201x; date of current version xx xxx. 201x. For information on obtaining reprints of this article, please send e-mail to: reprints@ieee.org.  
Digital Object Identifier: xx.xxx/TVCG.201x.xxxxxx

## 3 OVERVIEW

1. What are the steps to get from a satellite to 3d terrain rendering
  - (a) Acquisition (MRO information)
  - (b) Processing (AMES Stereo pipeline, ..., GDAL)
  - (c) Rendering (Globebrowsing)
2. short descriptions for each

Length: About 2 pages

## 4 IMAGE ACQUISITION AND PROCESSING

1. MRO information, different resolution levels
2. What are the available data products
3. Ames stereo pipeline
4. GDAL preprocessing

Length: About 1-1.5 pages

## 5 RENDERING SYSTEM

1. All the steps to get from GDAL to a rendering on the screen
2. Stereoscopic rendering
3. Dome rendering
4. Different resolution levels
5. Rendering rover locations

Length: About 2-2.5 pages (fill as much as the page limit (9+2) allows)

## 6 CONCLUSION

1. Blabla; introduction in reverse
2. Future work:
  - (a) Focus more on scientific rather than engineering goals

Length: About 1 page

## ACKNOWLEDGMENTS

The authors wish to thank A, B, C. This work was supported in part by a grant from XYZ.

## REFERENCES