

## Results of the PRoVisG Summer School 2011

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### Abstract

In September 2011 a Summer School inviting students and post docs as part of the EU FP7 project PRoVisG is taking place at the Technische Universität Berlin (TUB). Results of this Summer School are presented at EPSC 2011 and the current capabilities of the developed PRoVisG software, PRoViP, and project results are discussed.

### 1. Introduction

The PRoVisG project brings together major groups working on planetary robotic vision. The consortium consists of research institutions from in- and outside of Europe, as well as industrial stakeholders, being involved in the development of vision & navigation techniques for robotic space missions and their scientific exploitation. PRoVisG is developing a unified and generic approach to process robotic vision data on the ground [1] – e.g. back on Earth – to fully exploit the potential of past and future vision sensor data carried by robotic devices such as the Mars Exploration Rovers or the future ESA/NASA ExoMars-C 2018 mission [3].

### 2. Tenerife Field Test

In late September 2011 a field test campaign is scheduled to take place on Tenerife. It involves the EADS Astrium UK test rover Bridget that is capable to mount various instruments for testing purposes. Among these instruments is an optical bench, the ExoMars PanCam Emulator [2] provided by the Aberystwyth University, carrying models of the ExoMars PanCam Instrument (Fig 1). PanCam obtains stereo vision data during the field test made available immediately to participating institutions.

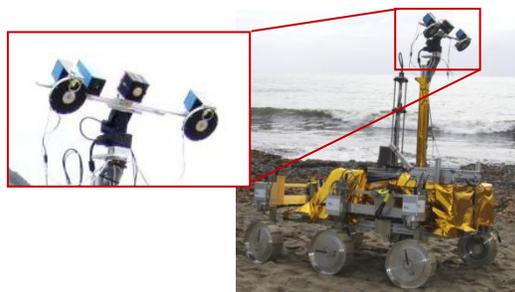


Figure 1: Bridget Rover with the mounted optical bench including the ExoMars PanCam emulating system by Aberystwyth University.

### 3. Summer School

Within the scope of PRoVisG the University of Technology in Berlin (TUB) holds a summer school and invited international students to participate in the scheduled lectures and the hands-on sessions applying the developed software. The goal is to educate students, enhance awareness of the project itself and of EU and international space exploration activities. As the summer school takes place simultaneously to the long planned field test campaign on Tenerife, it is also used to evaluate the capability of the PRoVisG software to support operation of a rover. Image data will be received directly from the field and immediately processed to evaluate the surroundings for mobility studies but also to identify and interpret scientifically interesting targets.

### 4. Expected Results

Image data from the Tenerife field test is processed by the different workflows provided by the various project partners and implemented in the PRoVisG

software suite. Resulting 3D models are compared and evaluated. Also, an interpretation of the derived representations from a scientific and operational aspect will be done. We report on the results and discuss the current status of applicability of the toolkit. Also, the usefulness of certain software features and the added value by PRoVisG to exploit robotic vision data will be reviewed.



Figure 2: 3D model with draped texture. Data obtained during the Clarach Bay field test and computed by Joanneum Research [4].

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