Image processing, 3D reconstruction, and Sea Ice

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With the rapid increase in resolution and availability of digital imaging hardware, computer vision and image processing have found new applications in a variety of fields. Here we present a collection of work on 3D reconstruction, image segmentation, recognition and interpolation. This work has been motivated by images of ice (both sea ice and glacial) captured in the Arctic. The Polar Sea Ice Topography REconstruction System (PSITRES) is a camera system developed for continual observation from an icebreaker, and the data collected on its two deployments offer significant challenges for traditional techniques and require unique solutions.