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A Two-level Method for Building a Statistical Shape Atlas

Chenyu Wu, Patty E. Murtha, Andrew Mor, and Branislav Jaramaz

5th Annual Meeting of the International Society for Computer Assisted Orthopaedic Surgery, June, 2005.

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Abstract

One important challenge in the creation of statistical anatomic atlases is dealing with the size and geometrical complexity of anatomical shapes such as the femur and pelvis, and hence the associated computational requirements for speed and memory. We present a two-level method for the construction of a statistical atlas. The problem is broken into two parts: a low-resolution solution to the correspondence and mapping of surface models, followed by a high-resolution interpolation and alignment to return to a full-featured shape-space. We focus on a new methodology for building a statistical atlas from the huge dimension data using a hierarchic approach. Experiments show that our two-level approach decreases the computational complexity and improves the speed while using less memory.

Notes

- **Associated Center(s) / Consortia:** [Medical Robotics Technology Center](#)
- **Associated Lab(s) / Group(s):** [Medical Robotics and Computer Assisted Surgery](#)
- **Number of pages:** 2

Text Reference

[Chenyu Wu](#), Patty E. Murtha, [Andrew Mor](#), and [Branislav Jaramaz](#), "A Two-level Method for Building a Statistical Shape Atlas," *5th Annual Meeting of the International Society for Computer Assisted Orthopaedic Surgery*, June, 2005.

BibTeX Reference

```
@inproceedings{Wu_2005_5400,  
  author = "Chenyu Wu and Patty E. Murtha and Andrew Mor and Branislav Jaramaz",  
  title = "A Two-level Method for Building a Statistical Shape Atlas",  
  booktitle = "5th Annual Meeting of the International Society for Computer Assisted Orthopaedic Surgery",  
  month = "June",  
  year = "2005",  
}
```