COMP61342: Computer Vision: Text Books and Electronic Resources

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There is no one book that covers the whole of this module, so you should expect to use a variety of books and electronic resources to cover the material properly.

Text Books

Main General Texts:

1. **Milan Sonka, Vaclav Hlavac, and Roger Boyle,**
   Image Processing, Analysis and Machine Vision,
   Chapman and Hall, London, 2007.
   This is the third edition, but the older editions will do as well. As the title suggests, this book starts with the image and basic image processing, in contrast to Forsythe and Ponce below, which starts with image formation and cameras.

   There is also the MATLAB companion volume:
   Tomas Svoboda, Jan Kybic, and Vaclav Hlavac,
   Image Processing, Analysis and Machine Vision - A MATLAB Companion

2. **Forsythe and Ponce,**
   Computer Vision: a Modern Approach,
   Prentice Hall, 2003
   Starts with image formation and cameras, rather than straight into image processing as in Sonka et al. But Parts II & III which go from a single image to multiple images (i.e., stereo and motion) fit in quite nicely with the way the current module is presented.

3. **Tim Morris,**
   Computer Vision and Image Processing,
   Cornerstones of Computing series, Palgrave Macmillan, 2004
   Not as broad a coverage as the previous two books, but very clearly written and easy to follow.

Other General Texts:

Not all of these are still in print, but you might find them in libraries.

4. **Davies, Machine Vision, Theory Algorithms and Practicalities, 2nd Ed. Academic Press, 1997.**

5. **Schalkoff, Digital Image Processing and Computer Vision,John Wiley and Sons Inc. 1989.**

6. **Jain, Kasturi and Schunk, Machine Vision, McGraw and Hill International Editions, 1995.**

7. **Gonzalez and Woods, Digital Image Processing**

More Specialized Texts

8. **R.J.Barlow,**
Statistics: A Guide to the Use of Statistical Methods in the Physical Sciences,Manchester Physics Series, John Wiley and Sons, 1989-2002.
About the best statistics reference you'll find. If you can't get a library copy, then if you're lucky, you might find the page you need on Google books.

9. **Davies, Twining, and Taylor,**
Statistical Models of Shape: Optimization and Evaluation,
Springer 2008
Some parts of the Introductory chapters will be useful as a basic introduction to some aspects of model-based vision, but with the distinct advantage that the whole book is available electronically as a Springer ebook via the university library.

10. **Jan Modersitski,**
Numerical Methods for Image Registration,
Numerical Methods and Scientific Computation series, Oxford Science Publications, 2004
There really aren't many textbooks that cover non-rigid image registration, and many that do so are either too specialist, or too medically inclined. This covers most of what we will cover, and don't be put off by the rather mathematical tone of the text.

Web Resources

As usual, many and numerous, but quality is not always guaranteed. Some which have been quality-tested:

11. **CVonline: The Evolving, Distributed, Non-Proprietary, On-Line Compendium of Computer Vision**
`http://homepages.inf.ed.ac.uk/rbf/CVonline/`
CVonline is described as "a collection of hypertext summaries on the central topics in computer vision". It is probably unsurpassed as a central compendium for computer vision techniques and is particularly useful as a starting point to new ideas and techniques.

12. **Statistics Resources:**
`http://www.math.yorku.ca/SCS/StatResource.html`
An extensive index focusing on Statistics. This list includes many links to free statistics software and algorithms as well as links to statistics teaching material. Might take you a while to find what you need, but it will be there somewhere!

13. **British Machine Vision Association:**
`http://www.bmva.org/`
The BMVA represent researchers in the machine vision field, and each year hold one of the premiere vision conferences, the British Machine Vision Conference. Online versions of some of the most recent conferences are available from this link.

14. **Centre for Imaging Sciences (formerly ISBE):**
`http://www.population-health.manchester.ac.uk/imaging/`
The Centre for Imaging Sciences here at the University of Manchester, hidden away in the Medical School, Stopford Building. There are useful resources on various staff pages. For instance, Tim Cootes, one of the originators of the Active Shape Model and Active Appearance Model in model-based vision, has various useful summaries on his webpage: `http://personalpages.manchester.ac.uk/staff/timothy.f.cootes/`