Posters in LaTeX

Jordan Roberts

Department of Mechanical Engineering
Auburn University

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Outline

Paper
Basics

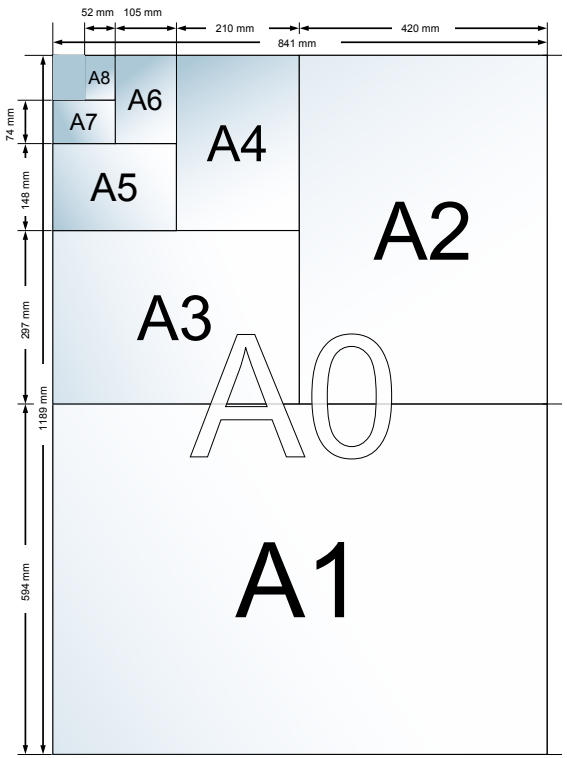


Figure: ISO 216 A Series Paper

LaTeX Posters
Options

Options for Creating Posters in LaTeX

- `baposter` class
- `a0poster` class
- `beamerposter` package

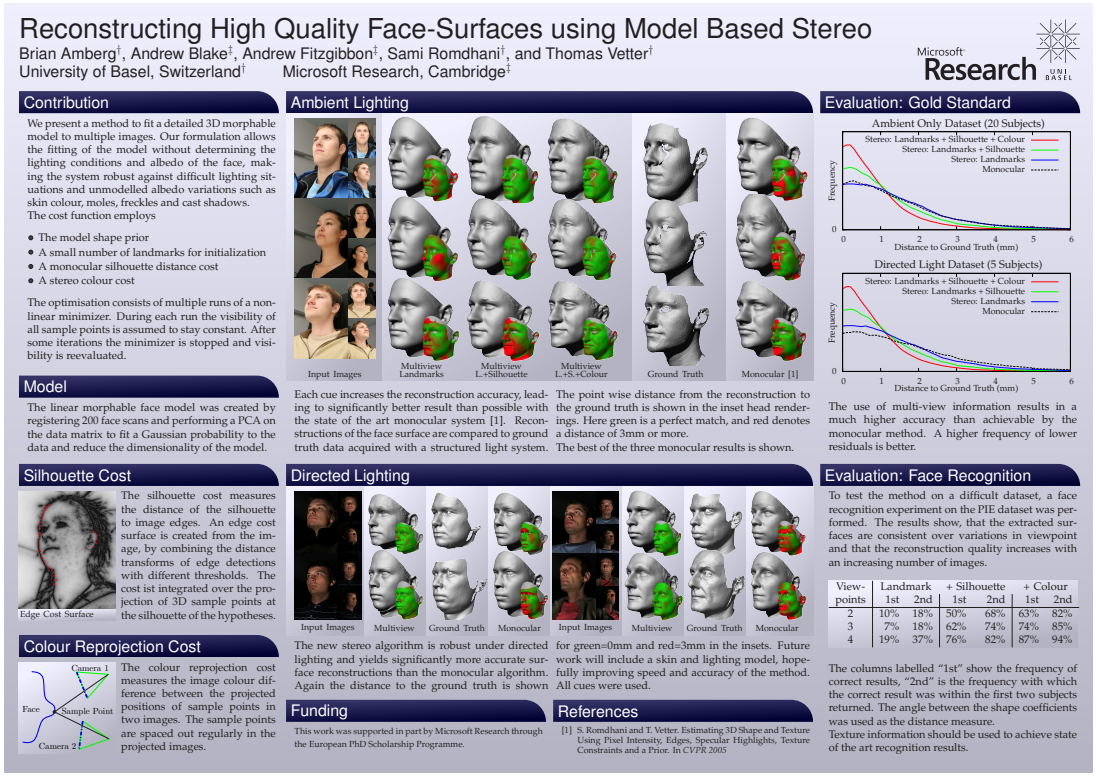
baposter
Background

`baposter` class

- created and maintained by Brian Amberg
- most posters look the same
- limited options
- seems to be the least supported option

Downloads and documentation can be found here:
`http://www.brian-amberg.de/uni/poster/`

baposter
Example Output



Reconstructing High Quality Face-Surfaces using Model Based Stereo

Brian Amberg†, Andrew Blake‡, Andrew Fitzgibbon‡, Sami Romdhani†, and Thomas Vetter†
University of Basel, Switzerland† Microsoft Research, Cambridge‡

Microsoft Research UNI BASEL

Contribution

We present a method to fit a detailed 3D morphable model to multiple images. Our formulation allows the fitting of the model without determining the lighting conditions and albedo of the face, making the system robust against difficult lighting situations and unmodelled albedo variations such as skin colour, moles, freckles and cast shadows.
The cost function employs

- The model shape prior
- A small number of landmarks for initialization
- A monocular silhouette distance cost
- A stereo colour cost

The optimisation consists of multiple runs of a non-linear minimizer. During each run the visibility of all sample points is assumed to stay constant. After some iterations the minimizer is stopped and visibility is reevaluated.

Model

The linear morphable face model was created by registering 200 face scans and performing a PCA on the data matrix to fit a Gaussian probability to the data and reduce the dimensionality of the model.

Silhouette Cost

The silhouette cost measures the distance of the silhouette to image edges. An edge cost surface is created from the image, by combining the distance transforms of edge detections with different thresholds. The cost ist integrated over the projection of 3D sample points at the silhouette of the hypotheses.

Edge Cost Surface

Colour Reprojection Cost

Camera 1 Face Sample Point Camera 2

The colour reprojection cost measures the image colour difference between the projected positions of sample points in two images. The sample points are spaced out regularly in the projected images.

Ambient Lighting

Input Images | Multiview Landmarks | Multiview L.+Silhouette | Multiview L.+S.+Colour | Ground Truth | Monocular [1]

Each cue increases the reconstruction accuracy, leading to significantly better result than possible with the state of the art monocular system [1]. Reconstructions of the face surface are compared to ground truth data acquired with a structured light system. The point wise distance from the reconstruction to the ground truth is shown in the inset head renderings. Here green is a perfect match, and red denotes a distance of 3mm or more.
The best of the three monocular results is shown.

Directed Lighting

Input Images | Multiview | Ground Truth | Monocular | Input Images | Multiview | Ground Truth | Monocular

The new stereo algorithm is robust under directed lighting and yields significantly more accurate surface reconstructions than the monocular algorithm. Again the distance to the ground truth is shown for green=0mm and red=3mm in the insets. Future work will include a skin and lighting model, hopefully improving speed and accuracy of the method. All cues were used.

Funding

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References

[1] S. Romdhani and T. Vetter. Estimating 3D Shape and Texture Using Pixel Intensity, Edges, Specular Highlights, Texture Constraints and a Prior. In *CVPR 2005*

Evaluation: Gold Standard

Ambient Only Dataset (20 Subjects)
Stereo: Landmarks + Silhouette + Colour
Stereo: Landmarks + Silhouette
Stereo: Landmarks
Monocular
Frequency
Distance to Ground Truth (mm)

Directed Light Dataset (5 Subjects)
Stereo: Landmarks + Silhouette + Colour
Stereo: Landmarks + Silhouette
Stereo: Landmarks
Monocular
Frequency
Distance to Ground Truth (mm)

The use of multi-view information results in a much higher accuracy than achievable by the monocular method. A higher frequency of lower residuals is better.

Evaluation: Face Recognition

To test the method on a difficult dataset, a face recognition experiment on the PIE dataset was performed. The results show, that the extracted surfaces are consistent over variations in viewpoint and that the reconstruction quality increases with an increasing number of images.

View-points	Landmark 1st	Landmark 2nd	+ Silhouette 1st	+ Silhouette 2nd	+ Colour 1st	+ Colour 2nd
2	10%	18%	50%	68%	63%	82%
3	7%	18%	62%	74%	74%	85%
4	19%	37%	76%	82%	87%	94%

The columns labelled "1st" show the frequency of correct results, "2nd" is the frequency with which the correct result was within the first two subjects returned. The angle between the shape coefficients was used as the distance measure.
Texture information should be used to achieve state of the art recognition results.

Figure: baposter example

baposter
Usage

- Works with:
  - miktek 2.7
  - texlive 2007
- Does *not* work with:
  - miktek 2.2
  - older versions of tetex
  - *possibly* older versions of pgf
  - `xkeyvals` older than v2.5

a0poster
Background

`a0poster` class

- developed by Gerlinde Kettl and Matthias Weiser
- Composed of four files
  - `a0poster.cls` Defines the class file
  - `a0size.sty` Defines the font sizes
  - `a0_eng.tex` Manual in English
  - `a0.tex` Manual in German
- font sizes 12pt (`"tiny`) up to 107 pt (`"VERYHuge`)

Downloads and documentation can be found here:
`http://www.ctan.org/tex-archive/help/Catalogue/entries/a0poster.html`

a0poster
Pitfalls

- Claims to work with A0, A1, A2, A3, and A4
- Has issues with scaling to sizes other than A0
  - *may* have been fixed with latest revision
- requires absolute positioning
- *they* prefer LaTeX to pdfLaTeX to take advantage of PStricks

a0poster
Things to know

- `a0poster.cls` based on article class
- `a0header.ps` file is created used by dvips to manage size
- `a0poster` does not support colors or pictures without pstricks etc.

a0poster
Usage

Sample Code

```
\documentclass[portrait,a0,final]{a0poster}
\begin{document}
% Write poster here
\end{document}
```

Replace `portrait` with `landscape` to be in landscape mode.

a0poster
Usage

a0poster class options

`landscape`	landscape format **(default)**
`portrait`	portrait format
`a0b`	DIN A0 big. Full width of HP Designjet 650C **(default)**
`a0`	DIN A0
`a1`	DIN A1
`a2`	DIN A2
`a3`	DIN A3
`draft`	reduces PS output to DIN A4 size
`final`	PS output in original size **(default)**

a0poster
Usage

a0poster font size options

\tiny	12pt
\scriptsize	14.4pt
\footnotesize	17.28pt
\small	20.74pt
\normalsize	24.88pt
\large	29.86pt
\Large	35.83pt
\LARGE	43pt
\huge	51.6pt
\Huge	61.92pt
\veryHuge	74.3pt
\VeryHuge	89.16pt
\VERYHuge	107pt

a0poster
Usage

a0poster positioning

- Positioning is done by order of code. Unless...
- you use the `textpos` package
- `\usepackage[absolute,overlay]{textpos}`

textpos options

absolute	makes origin upper left corner
overlay	gives text blocks opaque backgrounds
`\textblockcolour{color_name}`	changes color of background
showboxes	draws rectangle around text block

a0poster
Usage

textblock usage

```
\begin{textblock}{hsize}(hpos, vpos)
Some text
\end{textblock}
```

`hsize` and `hpos` given in units of module `\TPHorizModule`
`vpos` based on module `\TPVertModule`

textblock usage

```
\begin{textblock}{20.5}(1.5, 2.5)
Some text
\end{textblock}
```

a0poster
Usage

We define \TPHorizModule and \TPVertModule in the preamble as follows

textblock usage

```
\setlength{\TPHorizModule}{1cm}
\setlength{\TPVertModule}{1cm}
```

We can also place a grid with
\includepackage[colorgrid,texcoord]{eso-pic}

beamerposter
Background

- LaTeX `beamerposter` package
- Created by Philippe Dreuw and Thomas Deselaers
- Extension of `beamer` and `a0poster` class
- Creates posters in DIN-AX sizes and custom sizes
- applicable to custom beamer slides

LaTeX Requirements

- `beamer` class
- `fp` package (in version supporting choice keys, e.g. v2.5f
- `type1cm` package for scalable and huge math fonts

beamerposter
downloads

- beamerposter package available several places:
  - http://tug.ctan.org/cgi-bin/ctanPackageInformation.py?id=beamerposter
  - http://tug.ctan.org/tex-archive/macros/latex/contrib/beamerposter/
- google group
  http://groups.google.com/group/beamerposter

beamerposter
versions

- Current version of `beamerposter` package is 1.11
- ProTeXt release has v1.07
- Release Notes:
  - `beamerposter.sty.111` - renived uncompatible paralist package, bugfixed list indention problem
  - `beamerposter.sty.110` - improved package errors, warnings, and info messages
  - `beamerposter.sty.109` - bugfixed list indentation problem (e.g. itemize/enumerate/description/etc.), added printer option for external printer definition files
  - `beamerposter.sty.108` - supports external printer definition files, added grid mode option, renamed beamer specific variables, added font size normalization (scale=1.0 is now default for all DIN-A(n) sizes)

beamerposter EXAMPLE CODE

```
"documentclass[final,hyperref={pdfpagelabels=false}]{beamer}
  "mode<presentation> {  %% check http://www-i6.informatik.rwth-aachen.de/~dreuw/latexbeamerposter.php for examples
    "usetheme{Berlin}    %% you should define your own theme e.g. for big headlines using your own logos
  }
  "usepackage[english]{babel}
  "usepackage[latin1]{inputenc}
  "usepackage{amsmath,amsthm, amssymb, latexsym}
  %"usepackage{times}"usefonttheme{professionalfonts}  % times is obsolete
  "usefonttheme[onlymath]{serif}
  "boldmath
  "usepackage[orientation=portrait,size=a0,scale=1.4,debug]{beamerposter}                      % e.g. for DIN-A0 poster
  %"usepackage[orientation=portrait,size=a1,scale=1.4,grid,debug]{beamerposter}                 % e.g. for DIN-A1 poster, with optional grid and debug output
  %"usepackage[size=custom,width=200,height=120,scale=2,debug]{beamerposter}                   % e.g. for custom size poster
  %"usepackage[orientation=portrait,size=a0,scale=1.0,printer=rwth-glossy-uv.df]{beamerposter}  % e.g. for DIN-A0 poster with rwth-glossy-uv printer check
  % ...
  %
  "title[Fancy Posters]{Making Really Fancy Posters with "LaTeX}
  "author[Dreuw "& Deselaers]{Philippe Dreuw and Thomas Deselaers}
  "institute[RWTH Aachen University]{Human Language Technology and Pattern Recognition,RWTH Aachen University}
  "date{Jul. 31th, 2007}
  "begin{document}
  "begin{frame}{}
    "vfill
    "begin{block}{"large Fontsizes}
      "centering
      {"tiny tiny}"par
      {"scriptsize scriptsize}"par
      {"footnotesize footnotesize}"par
      {"normalsize normalsize}"par
      {"large large}"par
      {"Large Large}"par
      {"LARGE LARGE}"par
      {"veryHuge veryHuge}"par
      {"VeryHuge VeryHuge}"par
      {"VERYHuge VERYHuge}"par
    "end{block}
    "vfill
  "end{frame}
  "end{document}
```

beamerposter Example

Figure: Simple beamerposter output

Questions?

"So don't ask me no questions, and I won't tell you no lies."-Ronnie VanZant

HW

Using any of the three packages discussed, successfully compile any example poster. Submit code and poster printout using a "fit to paper" command in adobe or your choice of pdf or ps viewer.