CS846
Advanced Topics in Electronic Publishing

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Purpose or Goal of Seminar

This seminar surveys the latest work in the Electronic Publishing (EP), the Digital Typography (DT), and, perhaps, the Document Processing (DP) areas.

Along the way, we will learn some of the basics.
Probable/Possible Outline

- Typography
  - Traditional
  - Digital
- Fonts
- Formatters
- Editors
- Internationalization (I18n)
- Your topics
Requirements

Interest in the subject

Plus one of:

• do research on an EP topic
• do an EP project

Plus writing a conference-sized paper about the research or project

Plus giving a lecture about the paper
More Detail

I will now flesh out the outlines of some of the topics mentioned above.
Fonts

- Bitmap vs. outline
- Font definition languages
- Dynamic fonts
- Dynamic fonts to implement stretching in Arabic, Persian, Urdu, and Hebrew
Font Definition Languages

- METAFONT
- PostScript
- TrueType
POSTSCRIPT

- Type 3
- Type 1
- Hinting
- Adobe Type Manager (ATM)
- Multi-Master Fonts (MMF)
- Portable Document Format (PDF)
- Acrobat
Formatters

- Batch
  - troff
- \TeX
- WYSIWYG/Direct-Manipulation
  - Word
  - FrameMaker
- Formatting issues
- WYSIWYG vs. batch
- Formatting Pet Peeves (or things that cause me to cringe when I see them!)
Formatting Issues

- Justification vs. raggedness
- Line breaking
- Page layout problems and algorithms
- Imperative vs. mark-up
- Monolithic vs. piped
- Special purpose processors
WYSIWYG vs. batch

- User interface and software engineering issues
- Extensible object-oriented WYSIWYG
- Interchangeable WYSIWYG-batch
I18n Issues

- Multi-character sets—Unicode
- Multi-directional
- Localization issues
- ditroff/ffortid
- triroff
- vi.iv
- MINIX.XINIM
- Multi-lingual windows and mice
Division of Work

Instructor will give some lectures.

The student will be expected either

1. to choose a topic, research it thoroughly in the literature, and prepare a paper or
2. to choose a programming or specification project, do it, and prepare a paper.

Then he or she will be expected to give a 30-minute talk based on the paper ...
Division of Work, Cont’d

so that the whole class benefits from it, …

and the prof has one fewer lecture to do. 😊

The paper is conference sized, i.e., 10 pages in 2-column IEEE conference format.
Source Materials

Source materials will be published papers, plus articles in EP conference proceedings and journals.
Possible Topics

Many of the topics above are available; that is, you do the lecture instead of me.
Possible Topics, Cont’d

Also possible are:

- batch formatters other than troff
- WYSIWYG formatters other than Word
- page layout
- \TeX\ paragraphing (line-breaking) algorithm
- \TeX\ with unicode characters
Topics Cont’d

- Chinese/Japanese/ Korean (CJK) Typesetting
- Arabic/Persian/Urdu (APU) Typesetting
Projects

- Dynamic fonts to more general ligaturing in Arabic
- Dynamic fonts to implement handwriting
- Nastaliq and other slanted Arabic, Persian, and Urdu Calligraphy
- Alternate Unicode with only strong characters, i.e. one version of each neutral character in each direction and explicit embedding in place of weak characters
Projects, Cont’d

- Porting vi.iv to Linux
- Adding Arabic, Persian, or Urdu to vi.iv
- Requirements for Bi-directional windowing and mouse
- Requirements for Tri-directional vi
- Improved TextEdit for Mac OS/X