Software with Graphical User Interface for Processing of Archaeological Ground Penetrating Radar Data

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Abstract - *Specialized computer software currently exists to process ground penetrating radar(GPR) data, but in most cases it is company exclusive, expensive and difficult to use. In this paper we present a windows based software package developed for analyzing GPR data. It uses a Graphical User Interface (GUI) written for the MATLAB environment for convenient viewing and processing of GPR data. Processing operations include: trace display, delete mean trace, apply various filters, account for depth attenuation, active cursor point location, DC averaging, etc. The program is demonstrated by using RAMAC GPR data from the Homolovi I site in Northern Arizona.*

Introduction

The main paper content should be in a two column format with 0.3 inches between columns illustrated here using a **New Times Roman.** Please do not use the headers and footers as they are reserved for titling and pagination. Overall page margins should be set at **0.75 inch** left and right and **0.9 inch** top and bottom.

Please use a size **16 bold font** for your paper title centered across entire page and a size **14 italic** font for author's names centered across page.

The abstract should be as shown above: indented both sides from margin by **0.5** and be in a size **11 pt unbolded Italic Times New Roman** font across the entire page.

The paper's text should be single spaced with no space above and below lines using a size **11 Times New Roman font** and **fully justified**. Major headings should be **bolded** using a **12 pt font** with a single space both above and below these headings. **Please do not use the footer**. You may give your e-mail address in parenthesis if desired.

Begin and end the following pages of your manuscript on margins and give all references in the standard form used by American Antiquity at the end of your paper in **size 10 font**.

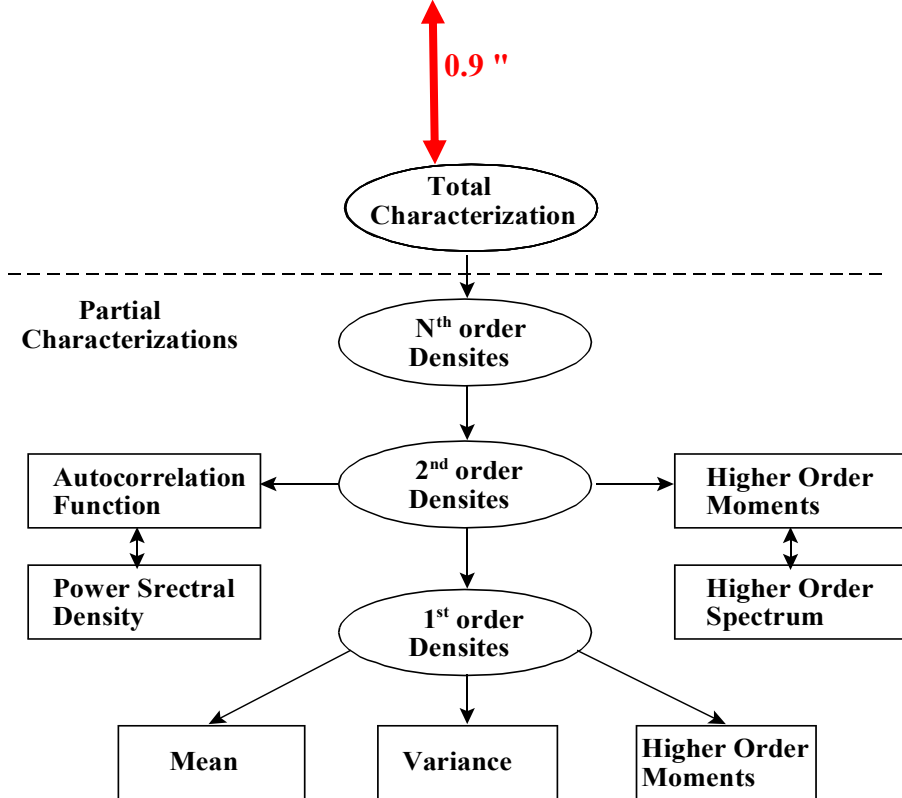If you have any trouble with the above format or what to do please contact me by phone: (575) 522-1691 or by e-mail: lcludeman@zianet.com.

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Total Characterization

Partial Characterizations

N^{th} order Densites

2nd order Densites

Autocorrelation Function

Higher Order Moments

Power Srectral Density

Higher Order Spectrum

1st order Densites

Mean

Variance

Higher Order Moments

Figure 1. The title for the figure should be in a 10 pt bold times new roman font.

Large figures should be placed at the top or bottom of a page where the two column format has been broken. They should be centered within margins and with title below figure in **10 point bold times new roman font** as shown above with 2 spaces below for continued content.

Small figures should be horizontally centered within columns with the title below the figure in **10 point bold times new roman** font as shown below, with 2 spaces below title if interior to text or at the top or bottom margin of the column if at the end.

Strict Sense Stationarity

Stationarity of Order n (n>2)

Stationarity of Order 2

Wide Sense Stationarity

If Gaussian

Stationarity of Order 1

Stationarity in Autocorrelation

Stationarity in the Mean

Figure 2. This is the title of the figure.

Text begins here and continues to the bottom margin

Continue Text

Small tables can be centered within one column of a two column format. Title in **10 pt bold times new roman bold**. Place one space above and two spaces Below table as shown below.

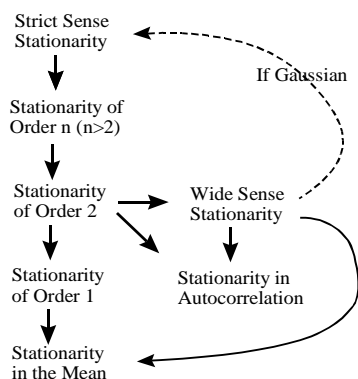**Table 1. Performance for Fuzzy Sugeno System for selected frames of Video 5.**

Video 5	Fuzzy Sugeno system		
Metric	Frame 520	Frame 820	Frame 940
F1	0.7099	0.8142	0.7869
Precision	0.8669	0.8796	0.8530
Recall	0.6010	0.7579	0.7303
Similarity	0.5502	0.6866	0.6487

Most large tables should be centered in one column format with a **centered title on top of the table using a 10 pt bold times new roman font** as shown in Table 2 (next page). Large tables should be placed at the top or bottom of a page if possible as shown on the next page.

Text begins here and continues to the bottom margin which is 0.9 inches from the bottom of the page.

Continue Text

Attribute ▶ Individual ▼	Height(x_1)	Weight(x_2)	Sex(x_3)	Health(x_3)
1	67	120.7	M	excellent
2	60	105.8	F	poor
3	65	156.3	F	good
4	72	214.5	M	average
5	48	94.7	F	very poor
6	82	275	M	good

Table 2. Mixed data from a survey showing quantitative, binary, and ordinal types

References should be put in the form used by American Antiquity. Examples are shown on the right. Referrals in the text are made by adding the reference in parentheses, for example:

connection(Cameron 1995) or
connection(Cameron and Duff 2008; Cordell 1997)

References cited should be in alphabetical order using last names of the first author. (use 10 pt font)

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References Cited

Cameron, Catherine M.
   1990 Pit Structure Abandonment in the Four Corners Region of the American Southwest: late Basketmaker III and Pueblo I periods. *Journal of Field Archaeology* 17:27-37.
   1995 Migration and the Movement of Southwestern Peoples. *Journal of Anthropological Archaeology* 14:104-124.
Cameron, Catherine M., and Andrew I. Duff.
   2008 History and Process in Village Formation: Context and Contrasts from the Northern Southwest. *American Antiquity* 73(1):29-57.
Cordell, Linda
   1997 *Archaeology of the Southwest.* 2nd ed. Academic Press, San Diego. Crow Canyon Archaeological Center
   2004 The Sand Canyon Pueblo Database, E-document.
   http:/www.crowcanyon.org/sandcnyondatabase.

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2. Right click your mouse.
3. Select Paragraph from the resulting pop up menu.
4. Under Indentation, use 0.2" use the Special pull-down menu to select hanging.
5. Use the By menu to select 0.2"