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Health Care Fraud Detection - Provider

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ABSTRACT

For solving the fraud problems in health care, the commonalities should be eliminated by the previous concerns raised by the FBI and FDA. The common concerns are ...

1) Billing for the services is not rendered, more precisely, buying a drug from the medical store, the worker needs to render bills even if we buy a small product every time and this is important because without rendering a product for the customers the tag comes as "Fraud committed by the healthcare-provider (drug negligence -pharmaceutical)".
2) In detail tests done in the lab should be recorded including a minor test in the lab. This part is more inclined towards the pharmaceuticals and product providers of the health care sector, with this the tag comes as "Fraud Committed by the Health care provider (No tests have been done before suggesting it to the patient)"
3) Misrepresentation of services like for health care testing the provided services are based on the particular but most of the hospitals do genetic testing for their research. One service has been manipulated for another, and with this the tag comes as "Fraud committed by the Healthcare Provider (Misrepresentation of service)"

For building a model we should be concentrating more on the difference between accidental and intentional and the model should first cluster itself to which branch of the healthcare sector is given. The reasons to predict fraud from the data set should be validated by the Government itself to make our model useful.

The goal of our model is not only to detect fraud but also to give the code and reason for what the fraud is and how the fraud is predicted with accurate measures of fraud with the right strategies and with the right evidence as a result of Detection.

To make our model as enhanced as possible we involve the prevention strategies too. For Example, if Fraud has been committed by a particular provider and measures can be taken to stop these types of fraud to happen.

Our model mainly focuses on detecting fraud by the Provider which is related to the Hospital records and drugs brought for their hospital, Prescriber which is related to billing services, and Patient which is more related to Insurance replication and wrongful insurance claims.

INDEX TERMS Enter key words or phrases in alphabetical order, separated by commas. Autocorrelation, beamforming, communications technology, dictionary learning, feedback, fMRI, mmWave, multipath, system design, multipath, slight fault, underlubrication fault.

I. INTRODUCTION

The Healthcare fraud can have a significant financial impact, leading to increased healthcare costs for patients, payers, and taxpayers [1]. These Frauds can be committed by the medical providers like submitting multiple bills for the same service, patients like for providing health care services or equipment without an license and the prescription type frauds like forged prescriptions and doctor shopping. There is a difference between Fraud and Abuse. Fraud is where an unfair or an dishonest advantage which can be used for financial and personal benefits and abuse is misusing a product or a system that can be harmful. The healthcare abuse systems according Federal Beaureau of Investigation (FBI) [] which is commonly to an opiod abuse.

For solving the fraud problems in health care, the commonalities like D should be eliminated by the previous concerns raised by the National Health Care Anti-Fraud Association(NHCAA). The common concerns are Billing for services that were never rendered, Billing for more expensive services or procedures than were provided or performed, Performing medically unnecessary services solely to generate insurance payments, Misrepresenting non-covered treatments, Falsifying a patient's diagnosis and medical record to justify tests, Billing for each step of a procedure as if they are separate procedures, Accepting kickbacks for patient referrals.

According to the Federal Beaurau of Inverstigation (FBI) there are three types of fraud, Fraud Committed by Medical Providers, Fraud Committed by Patients and Other Individuals, Fraud Involving Prescriptions. This paper provides and considers different datasets provided by the CMS which are related to the Fraud committed by the Medical Providers.

A. ABBREVIATIONS AND ACRONYMS

Define abbreviations and acronyms the first time they are used in the text, even after they have already been defined in the abstract. Abbreviations such as IEEE, SI, ac, and dc do not have to be defined. Abbreviations that incorporate periods should not have spaces: write "C.N.R.S.," not "C. N. R. S." Do not use abbreviations in the title unless they are unavoidable (for example, "IEEE" in the title of this article).

B. OTHER RECOMMENDATIONS

Use one space after periods and colons. Hyphenate complex modifiers: "zero-field-cooled magnetization." Avoid dangling participles, such as, "Using (1), the potential was calculated." [It is not clear who or what used (1).] Write instead, "The potential was calculated by using (1)," or "Using (1), we calculated the potential."

Use a zero before decimal points: "0.25," not ".25." Use "cm^3," not "cc." Indicate sample dimensions as "0.1 cm $\times$ 0.2 cm," not "0.1 $\times$ 0.2 cm^2." The abbreviation for "seconds" is "s," not "sec." Use "$\mathrm{Wb/m}^2$" or "webers per square meter," not "webers/m^2." When expressing a range of values, write "7 to 9" or "7–9," not "7$\sim$9."

A parenthetical statement at the end of a sentence is punctuated outside of the closing parenthesis (like this). (A parenthetical sentence is punctuated within the parentheses.) In American English, periods and commas are within quotation marks, like "this period." Other punctuation is "outside"! Avoid contractions; for example, write "do not" instead of "don't." The serial comma is preferred: "A, B, and C" instead of "A, B and C."

If you wish, you may write in the first person singular or plural and use the active voice ("I observed that ..." or "We observed that ..." instead of "It was observed that ..."). Remember to check spelling. If your native language is not English, please get a native English-speaking colleague to carefully proofread your paper.

Try not to use too many typefaces in the same article. Also please remember that MathJax can't handle really weird typefaces.

C. EQUATIONS

Number equations consecutively with equation numbers in parentheses flush with the right margin, as in (1). To make your equations more compact, you may use the solidus (/), the exp function, or appropriate exponents. Use parentheses to avoid ambiguities in denominators. Punctuate equations when they are part of a sentence, as in

$$\mathrm{E} = \mathrm{mc}^2. \tag{1}$$

Be sure that the symbols in your equation have been defined before the equation appears or immediately following. Italicize symbols (T might refer to temperature, but T is the unit tesla). Refer to "(1)," not "Eq. (1)" or "equation (1)," except at the beginning of a sentence: "Equation (1) is ... ."

D. LATEX-SPECIFIC ADVICE

Please use "soft" (e.g., `\eqref{Eq}`) cross references instead of "hard" references (e.g., `(1)`). That will make it possible to combine sections, add equations, or change the order of figures or citations without having to go through the file line by line.

Please don't use the `{eqnarray}` equation environment. Use `{align}` or `{IEEEeqnarray}` instead. The `{eqnarray}` environment leaves unsightly spaces around relation symbols.

Please note that the `{subequations}` environment in LaTeX will increment the main equation counter even when there are no equation numbers displayed. If you forget that, you might write an article in which the equation numbers skip from (17) to (20), causing the copy editors to wonder if you've discovered a new method of counting.

BibTeX does not work by magic. It doesn't get the bibliographic data from thin air but from .bib files. If you use BibTeX to produce a bibliography you must send the .bib files.

LaTeX can't read your mind. If you assign the same label to a subsubsection and a table, you might find that Table I has been cross referenced as Table IV-B3.

LaTeX does not have precognitive abilities. If you put a `\label` command before the command that updates the counter it's supposed to be using, the label will pick up the last counter to be cross referenced instead. In particular, a `\label` command should not go before the caption of a figure or a table.

Do not use `\nonumber` inside the `{array}` environment. It will not stop equation numbers inside `{array}` (there won't be any anyway) and it might stop a wanted equation number in the surrounding equation.

II. UNITS

Use either SI (MKS) or CGS as primary units. (SI units are strongly encouraged.) English units may be used as secondary units (in parentheses). This applies to papers in data storage. For example, write "15 Gb/cm^2 (100 Gb/in^2)." An exception is when English units are used as identifiers in trade, such as "3$^{1/2}$-in disk drive." Avoid combining SI and CGS units, such as current in amperes and magnetic field in oersteds. This often leads to confusion because equations do not balance dimensionally. If you must use mixed units, clearly state the units for each quantity in an equation.

The SI unit for magnetic field strength H is A/m. However, if you wish to use units of T, either refer to magnetic flux density B or magnetic field strength symbolized as μ_0H. Use the center dot to separate compound units, e.g., "A·m^2."

III. SOME COMMON MISTAKES

The word "data" is plural, not singular. The subscript for the permeability of vacuum μ_0 is zero, not a lowercase letter "o." The term for residual magnetization is "remanence"; the adjective is "remanent"; do not write "remnance" or "remnant." Use the word "micrometer" instead of "micron." A graph within a graph is an "inset," not an "insert." The word "alternatively" is preferred to the word "alternately" (unless you really mean something that alternates). Use the word "whereas" instead of "while" (unless you are referring to simultaneous events). Do not use the word "essentially" to mean "approximately" or "effectively." Do not use the word "issue" as a euphemism for "problem." When compositions are not specified, separate chemical symbols by en-dashes; for example, "NiMn" indicates the intermetallic compound $Ni_{0.5}Mn_{0.5}$ whereas "Ni–Mn" indicates an alloy of some composition Ni_xMn_{1-x}.

Be aware of the different meanings of the homophones "affect" (usually a verb) and "effect" (usually a noun), "complement" and "compliment," "discreet" and "discrete," "principal" (e.g., "principal investigator") and "principle" (e.g., "principle of measurement"). Do not confuse "imply" and "infer."

Prefixes such as "non," "sub," "micro," "multi," and "ultra" are not independent words; they should be joined to the words they modify, usually without a hyphen. There is no period after the "et" in the Latin abbreviation "et al." (it is also italicized). The abbreviation "i.e.," means "that is," and the abbreviation "e.g.," means "for example" (these abbreviations are not italicized).

A general IEEE styleguide is available at http://www.ieee.org/authortools.

IV. GUIDELINES FOR GRAPHICS PREPARATION AND SUBMISSION

A. TYPES OF GRAPHICS

The following list outlines the different types of graphics published in IEEE journals. They are categorized based on their construction, and use of color/shades of gray:

1) Color/Grayscale figures

Figures that are meant to appear in color, or shades of black/gray. Such figures may include photographs, illustrations, multicolor graphs, and flowcharts. For multicolor graphs, please avoid any gray backgrounds or shading, as well as screenshots, instead export the graph from the program used to collect the data.

2) Line Art figures

Figures that are composed of only black lines and shapes. These figures should have no shades or half-tones of gray, only black and white.

3) Author photos

Author photographs should be included with the author biographies located at the end of the article underneath References.

4) Tables

Data charts which are typically black and white, but sometimes include color.

B. MULTIPART FIGURES

Figures compiled of more than one sub-figure presented side-by-side, or stacked. If a multipart figure is made up of multiple figure types (one part is lineart, and another is grayscale or color) the figure should meet the stricter guidelines.

C. FILE FORMATS FOR GRAPHICS

Format and save your graphics using a suitable graphics processing program that will allow you to create the images as PostScript (.PS), Encapsulated PostScript (.EPS), Tagged Image File Format (.TIFF), Portable Document Format (.PDF), Portable Network Graphics (.PNG), or Metapost (.MPS), sizes them, and adjusts the resolution settings. When submitting your final paper, your graphics should all be submitted individually in one of these formats along with the manuscript.

D. SIZING OF GRAPHICS

Most charts, graphs, and tables are one column wide (3.5 inches/88 millimeters/21 picas) or page wide (7.16 inches/181 millimeters/43 picas). The maximum depth a graphic can be is 8.5 inches (216 millimeters/54 picas).

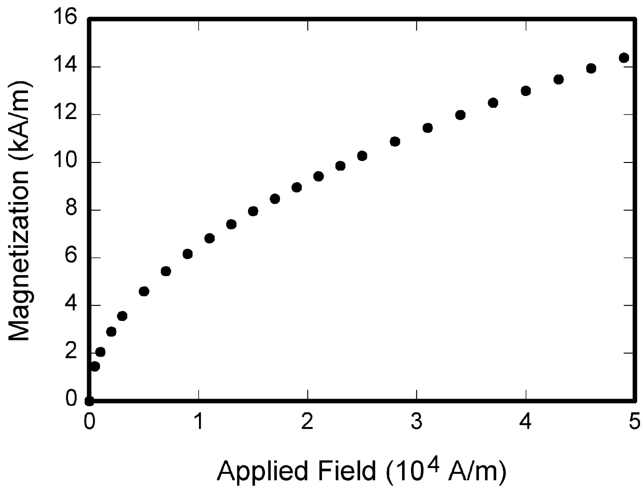

FIGURE 1. **Magnetization as a function of applied field. It is good practice to explain the significance of the figure in the caption.**

TABLE 1. **Units for Magnetic Properties**

Symbol	Quantity	Conversion from Gaussian and CGS EMU to SI [a]
Φ	magnetic flux	$1\ \mathrm{Mx} \rightarrow 10^{-8}\ \mathrm{Wb} = 10^{-8}\ \mathrm{V{\cdot}s}$
B	magnetic flux density, magnetic induction	$1\ \mathrm{G} \rightarrow 10^{-4}\ \mathrm{T} = 10^{-4}\ \mathrm{Wb/m^2}$
H	magnetic field strength	$1\ \mathrm{Oe} \rightarrow 10^3/(4\pi)\ \mathrm{A/m}$
m	magnetic moment	$1\ \mathrm{erg/G} = 1\ \mathrm{emu} \rightarrow 10^{-3}\ \mathrm{A{\cdot}m^2} = 10^{-3}\ \mathrm{J/T}$
M	magnetization	$1\ \mathrm{erg/(G{\cdot}cm^3)} = 1\ \mathrm{emu/cm^3} \rightarrow 10^3\ \mathrm{A/m}$
4πM	magnetization	$1\ \mathrm{G} \rightarrow 10^3/(4\pi)\ \mathrm{A/m}$
σ	specific magnetization	$1\ \mathrm{erg/(G{\cdot}g)} = 1\ \mathrm{emu/g} \rightarrow 1\ \mathrm{A{\cdot}m^2/kg}$
j	magnetic dipole moment	$1\ \mathrm{erg/G} = 1\ \mathrm{emu} \rightarrow 4\pi \times 10^{-10}\ \mathrm{Wb{\cdot}m}$
J	magnetic polarization	$1\ \mathrm{erg/(G{\cdot}cm^3)} = 1\ \mathrm{emu/cm^3} \rightarrow 4\pi \times 10^{-4}\ \mathrm{T}$
χ, κ	susceptibility	$1 \rightarrow 4\pi$
χ_ρ	mass susceptibility	$1\ \mathrm{cm^3/g} \rightarrow 4\pi \times 10^{-3}\ \mathrm{m^3/kg}$
μ	permeability	$1 \rightarrow 4\pi \times 10^{-7}\ \mathrm{H/m} = 4\pi \times 10^{-7}\ \mathrm{Wb/(A{\cdot}m)}$
μ_r	relative permeability	$\mu \rightarrow \mu_\mathrm{r}$
w, W	energy density	$1\ \mathrm{erg/cm^3} \rightarrow 10^{-1}\ \mathrm{J/m^3}$
N, D	demagnetizing factor	$1 \rightarrow 1/(4\pi)$

Vertical lines are optional in tables. Statements that serve as captions for the entire table do not need footnote letters.
[a]Gaussian units are the same as cg emu for magnetostatics; Mx = maxwell, G = gauss, Oe = oersted; Wb = weber, V = volt, s = second, T = tesla, m = meter, A = ampere, J = joule, kg = kilogram, H = henry.

When choosing the depth of a graphic, please allow space for a caption. Figures can be sized between column and page widths if the author chooses, however it is recommended that figures are not sized less than column width unless when necessary.

There is currently one publication with column measurements that do not coincide with those listed above. Proceedings of the IEEE has a column measurement of 3.25 inches (82.5 millimeters/19.5 picas).

The final printed size of author photographs is exactly 1 inch wide by 1.25 inches tall (25.4 millimeters × 31.75 millimeters/6 picas × 7.5 picas). Author photos printed in editorials measure 1.59 inches wide by 2 inches tall (40 millimeters × 50 millimeters/9.5 picas × 12 picas).

E. RESOLUTION

The proper resolution of your figures will depend on the type of figure it is as defined in the "Types of Figures" section. Author photographs, color, and grayscale figures should be at least 300dpi. Line art, including tables should be a minimum of 600dpi.

F. VECTOR ART

In order to preserve the figures' integrity across multiple computer platforms, we accept files in the following formats: .EPS/.PDF/.PS. All fonts must be embedded or text converted to outlines in order to achieve the best-quality results.

G. COLOR SPACE

The term color space refers to the entire sum of colors that can be represented within the said medium. For our purposes, the three main color spaces are Grayscale, RGB (red/green/blue) and CMYK (cyan/magenta/yellow/black). RGB is generally used with on-screen graphics, whereas CMYK is used for printing purposes.

All color figures should be generated in RGB or CMYK color space. Grayscale images should be submitted in Grayscale color space. Line art may be provided in grayscale OR bitmap colorspace. Note that "bitmap colorspace" and "bitmap file format" are not the same thing.

When bitmap color space is selected, .TIF/.TIFF/.PNG are the recommended file formats.

H. ACCEPTED FONTS WITHIN FIGURES

When preparing your graphics IEEE suggests that you use of one of the following Open Type fonts: Times New Roman, Helvetica, Arial, Cambria, and Symbol. If you are supplying EPS, PS, or PDF files all fonts must be embedded. Some fonts may only be native to your operating system; without the fonts embedded, parts of the graphic may be distorted or missing.

A safe option when finalizing your figures is to strip out the fonts before you save the files, creating "outline" type. This converts fonts to artwork what will appear uniformly on any screen.

I. USING LABELS WITHIN FIGURES

1) Figure Axis labels

Figure axis labels are often a source of confusion. Use words rather than symbols. As an example, write the quantity "Magnetization," or "Magnetization M," not just "M." Put units in parentheses. Do not label axes only with units. As in Fig. 1, for example, write "Magnetization (A/m)" or "Magnetization ($A{\cdot}m^{-1}$)," not just "A/m." Do not label axes with a ratio of quantities and units. For example, write "Temperature (K)," not "Temperature/K."

Multipliers can be especially confusing. Write "Magnetization (kA/m)" or "Magnetization (10^3 A/m)." Do not write "Magnetization (A/m) $\times$ 1000" because the reader would not know whether the top axis label in Fig. 1 meant 16000 A/m or 0.016 A/m. Figure labels should be legible, approximately 8 to 10 point type.

2) Subfigure Labels in Multipart Figures and Tables

Multipart figures should be combined and labeled before final submission. Labels should appear centered below each subfigure in 8 point Times New Roman font in the format of (a) (b) (c).

J. FILE NAMING

Figures (line artwork or photographs) should be named starting with the first 5 letters of the author's last name. The next characters in the filename should be the number that represents the sequential location of this image in your article. For example, in author "Anderson's" paper, the first three figures would be named ander1.tif, ander2.tif, and ander3.ps.

Tables should contain only the body of the table (not the caption) and should be named similarly to figures, except that '.t' is inserted in-between the author's name and the table number. For example, author Anderson's first three tables would be named ander.t1.tif, ander.t2.ps, ander.t3.eps.

Author photographs should be named using the first five characters of the pictured author's last name. For example, four author photographs for a paper may be named: oppen.ps, moshc.tif, chen.eps, and duran.pdf.

If two authors or more have the same last name, their first initial(s) can be substituted for the fifth, fourth, third... letters of their surname until the degree where there is differentiation. For example, two authors Michael and Monica Oppenheimer's photos would be named oppmi.tif, and oppmo.eps.

K. REFERENCING A FIGURE OR TABLE WITHIN YOUR PAPER

When referencing your figures and tables within your paper, use the abbreviation "Fig." even at the beginning of a sentence. Figures should be numbered with Arabic Numerals. Do not abbreviate "Table." Tables should be numbered with Roman Numerals.

L. SUBMITTING YOUR GRAPHICS

Because IEEE will do the final formatting of your paper, you do not need to position figures and tables at the top and bottom of each column. In fact, all figures, figure captions, and tables can be placed at the end of your paper. In addition to, or even in lieu of submitting figures within your final manuscript, figures should be submitted individually, separate from the manuscript in one of the file formats listed above in Section IV-C. Place figure captions below the figures; place table titles above the tables. Please do not include captions as part of the figures, or put them in "text boxes" linked to the figures. Also, do not place borders around the outside of your figures.

M. COLOR PROCESSING/PRINTING IN IEEE JOURNALS

All IEEE Transactions, Journals, and Letters allow an author to publish color figures on IEEE Xplore® at no charge, and automatically convert them to grayscale for print versions. In most journals, figures and tables may alternatively be printed in color if an author chooses to do so. Please note that this service comes at an extra expense to the author. If you intend to have print color graphics, include a note with your final paper indicating which figures or tables you would like to be handled that way, and stating that you are willing to pay the additional fee.

V. CONCLUSION

Although a conclusion may review the main points of the paper, do not replicate the abstract as the conclusion. A conclusion might elaborate on the importance of the work or suggest applications and extensions.

If you have multiple appendices, use the \appendices command below. If you have only one appendix, use \appendix[Appendix Title]

APPENDIX A
FOOTNOTES

Number footnotes separately in superscript numbers.[1] Place the actual footnote at the bottom of the column in which it is cited; do not put footnotes in the reference list (endnotes). Use letters for table footnotes (see Table 1).

APPENDIX B
SUBMITTING YOUR PAPER FOR REVIEW

A. FINAL STAGE

When your article is accepted, you can submit the final files, including figures, tables, and photos, per the journal's guidelines through the submission system used to submit the articlle. You may use Zip for large files, or compress files using Compress, Pkzip, Stuffit, or Gzip.

In addition, designate one author as the "corresponding author." This is the author to whom proofs of the paper will be sent. Proofs are sent to the corresponding author only.

B. REVIEW STAGE USING IEEE AUTHOR PORTAL

Article contributions to IEEE Access should be submitted electronically on the IEEE Author Portal. For more information, please visit https://ieeeaccess.ieee.org/.

Along with other information, you will be asked to select the subject from a pull-down list. There are various steps to the submission process; you must complete all steps for a complete submission. At the end of each step you must click "Save and Continue"; just uploading the paper is not sufficient. After the last step, you should see a confirmation that the submission is complete. You should also receive an e-mail confirmation. For inquiries regarding the submission of your article, please contact ieeeaccess@ieee.org.

The manuscript should be prepared in a double column, single-spaced format using a required IEEE Access template. A Word or LaTeX file and a PDF file are both required upon submission in the IEEE Author Portal.

C. FINAL STAGE USING IEEE AUTHOR PORTAL

Upon acceptance, you will receive an email with specific instructions

Designate the author who submitted the manuscript on IEEE Author Portal as the "corresponding author." This is the only author to whom proofs of the paper will be sent.

D. COPYRIGHT FORM

Authors must submit an electronic IEEE Copyright Form (eCF) upon submitting their final manuscript files. You can access the eCF system through your manuscript submission system or through the Author Gateway. You are responsible for obtaining any necessary approvals and/or security clearances. For additional information on intellectual property rights, visit the IEEE Intellectual Property Rights department web page at http://www.ieee.org/publications_standards/publications/rights/index.html.

[1]It is recommended that footnotes be avoided (except for the unnumbered footnote with the receipt date on the first page). Instead, try to integrate the footnote information into the text.

APPENDIX C
IEEE PUBLISHING POLICY

The general IEEE policy requires that authors should only submit original work that has neither appeared elsewhere for publication, nor is under review for another refereed publication. The submitting author must disclose all prior publication(s) and current submissions when submitting a manuscript. Do not publish "preliminary" data or results. To avoid any delays in publication, please be sure to follow these instructions. Final submissions should include source files of your accepted manuscript, high quality graphic files, and a formatted pdf file. If you have any questions regarding the final submission process, please contact the administrative contact for the journal. author is responsible for obtaining agreement of all coauthors and any consent required from employers or sponsors before submitting an article.

The IEEE Access Editorial Office does not publish conference records or proceedings, but can publish articles related to conferences that have undergone rigorous peer review. Minimally, two reviews are required for every article submitted for peer review.

APPENDIX D
PUBLICATION PRINCIPLES

Authors should consider the following points:

1) Technical papers submitted for publication must advance the state of knowledge and must cite relevant prior work.
2) The length of a submitted paper should be commensurate with the importance, or appropriate to the complexity, of the work. For example, an obvious extension of previously published work might not be appropriate for publication or might be adequately treated in just a few pages.
3) Authors must convince both peer reviewers and the editors of the scientific and technical merit of a paper; the standards of proof are higher when extraordinary or unexpected results are reported.
4) Because replication is required for scientific progress, papers submitted for publication must provide sufficient information to allow readers to perform similar experiments or calculations and use the reported results. Although not everything need be disclosed, a paper must contain new, useable, and fully described information. For example, a specimen's chemical composition need not be

reported if the main purpose of a paper is to introduce a new measurement technique. Authors should expect to be challenged by reviewers if the results are not supported by adequate data and critical details.

5) Papers that describe ongoing work or announce the latest technical achievement, which are suitable for presentation at a professional conference, may not be appropriate for publication.

APPENDIX E
REFERENCE EXAMPLES

- Basic format for books:
  J. K. Author, "Title of chapter in the book," in Title of His Published Book, xth ed. City of Publisher, (only U.S. State), Country: Abbrev. of Publisher, year, ch. x, sec. x, pp. xxx–xxx.
  See [1], [2].
- Basic format for periodicals:
  J. K. Author, "Name of paper," Abbrev. Title of Periodical, vol. x, no. x,pp. xxx–xxx, Abbrev. Month, year, DOI. 10.1109.XXX.123456.
  See [3]– [5].
- Basic format for reports:
  J. K. Author, "Title of report," Abbrev. Name of Co., City of Co., Abbrev. State, Country, Rep. xxx, year.
  See [6], [7].
- Basic format for handbooks:
  Name of Manual/Handbook, x ed., Abbrev. Name of Co., City of Co., Abbrev. State, Country, year, pp. xxx–xxx.
  See [8], [9].
- Basic format for books (when available online):
  J. K. Author, "Title of chapter in the book," in Title of Published Book, xth ed. City of Publisher, State, Country: Abbrev. of Publisher, year, ch. x, sec. x, pp. xxx–xxx. [Online]. Available: http://www.web.com
  See [10]– [13].
- Basic format for journals (when available online):
  J. K. Author, "Name of paper," Abbrev. Title of Periodical, vol. x, no. x, pp. xxx–xxx, Abbrev. Month, year. Accessed on: Month, Day, year, DOI: 10.1109.XXX.123456, [Online].
  See [14]– [16].
- Basic format for papers presented at conferences (when available online):
  J.K. Author. (year, month). Title. presented at abbrev. conference title. [Type of Medium]. Available: site/path/file
  See [17].
- Basic format for reports and handbooks (when available online):
  J. K. Author. "Title of report," Company. City, State, Country. Rep. no., (optional: vol./issue), Date. [Online] Available: site/path/file
  See [18], [19].
- Basic format for computer programs and electronic documents (when available online):
  Legislative body. Number of Congress, Session. (year, month day). Number of bill or resolution, Title. [Type of medium]. Available: site/path/file
  See [20].
- Basic format for patents (when available online):
  Name of the invention, by inventor's name. (year, month day). Patent Number [Type of medium]. Available: site/path/file
  See [21].
- Basic formatfor conference proceedings (published):
  J. K. Author, "Title of paper," in Abbreviated Name of Conf., City of Conf., Abbrev. State (if given), Country, year, pp. xxxxxx.
  See [22].
- Example for papers presented at conferences (unpublished):
  See [23].
- Basic format for patents:
  J. K. Author, "Title of patent," U.S. Patent x xxx xxx, Abbrev. Month, day, year.
  See [24].
- Basic format for theses (M.S.) and dissertations (Ph.D.):
  1) J. K. Author, "Title of thesis," M.S. thesis, Abbrev. Dept., Abbrev. Univ., City of Univ., Abbrev. State, year.
  2) J. K. Author, "Title of dissertation," Ph.D. dissertation, Abbrev. Dept., Abbrev. Univ., City of Univ., Abbrev. State, year.

  See [25], [26].
- Basic format for the most common types of unpublished references:
  1) J. K. Author, private communication, Abbrev. Month, year.
  2) J. K. Author, "Title of paper," unpublished.
  3) J. K. Author, "Title of paper," to be published.

  See [27]– [29].
- Basic formats for standards:
  1) Title of Standard, Standard number, date.
  2) Title of Standard, Standard number, Corporate author, location, date.

  See [30], [31].
- Article number in reference examples:
  See [32], [33].
- Example when using et al.:
  See [34].

ACKNOWLEDGMENT

The preferred spelling of the word "acknowledgment" in American English is without an "e" after the "g." Use the singular heading even if you have many acknowledgments. Avoid expressions such as "One of us (S.B.A.) would like to thank . . . ." Instead, write "F. A. Author thanks . . . ." In most cases, sponsor and financial support acknowledgments are placed in the unnumbered footnote on the first page, not here.

REFERENCES

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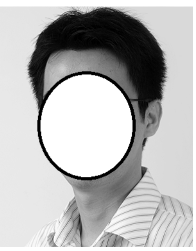

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