Pengetahuan dan Kemampuan yang Dimiliki Pengguna Non-Ahli dalam Mendeteksi Phishing

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***Abstract*—Email phishing adalah komunikasi penipuan yang berpura-pura menjadi sesuatu yang bukan sebenarnya untuk membuat orang melakukan tindakan yang seharusnya tidak mereka lakukan. Kami melakukan survei terhadap beberapa orang dari berbagai demografi di Indonesia dan meminta mereka untuk berbagi pengalaman mereka terkait email phishing. Dari analisis pengalaman tersebut, kami menemukan bahwa cara pengguna email mendeteksi pesan phishing memiliki banyak kesamaan dengan cara ahli IT mengidentifikasi phishing. Kami juga menemukan bahwa pengguna email memiliki pengetahuan unik dan kemampuan berharga dalam proses identifikasi yang tidak dimiliki oleh kontrol teknis maupun ahli IT. Kami menyarankan bahwa pelatihan yang ditargetkan pada cara memanfaatkan keunikan ini kemungkinan akan meningkatkan pencegahan phishing.**

***Index Terms*—Phishing detection, non-expert users, email security, user capabilities, cybersecurity awareness, security training, user knowledge, online threats, digital literacy, human factors in security.**

I. Introduction

EMAIL adalah salah satu metode komunikasi yang paling umum digunakan, terutama dalam organisasi besar dan e-commerce. Lebih dari 3,9 miliar orang memiliki akun email, dan secara kolektif mereka mengirim dan menerima lebih dari 290 miliar email per hari [1]. Email merupakan salah satu metode utama yang digunakan untuk berkomunikasi dengan orang asing. Namun, karena email adalah sistem global di mana siapa saja dapat berkomunikasi dengan siapa saja, pelaku kejahatan mengirim email yang berpura-pura menjadi sesuatu yang bukan sebenarnya, dan menipu orang untuk melakukan tindakan yang seharusnya tidak mereka lakukan — yang dikenal sebagai phishing [2]. Pesan phishing adalah vektor serangan yang telah menyebabkan banyak kerugian dalam masyarakat. Email phishing telah digunakan untuk mencuri uang dalam jumlah besar [3], menginstal ransomware [4], atau sekadar mencuri konten email yang kemudian dipublikasikan [5]. 32% dari semua pelanggaran perusahaan pada tahun 2018 disebabkan oleh phishing [6]. Spear-phishing – varian di mana email disesuaikan khusus dengan penerima – digunakan oleh 65% kelompok yang melakukan serangan siber yang ditargetkan, dan lebih umum digunakan daripada kerentanan zero-day (hanya 23% dari kelompok tersebut) [7].

Phishing adalah masalah sosio-teknis, dan menangani masalah ini membutuhkan kerja sama antara inovasi teknologi dan intervensi manusia. Teknologi sedang dikembangkan untuk membantu mengidentifikasi dan menyaring pesan phishing, tetapi teknologi ini tidak bekerja dengan akurasi 100% dan dapat lambat merespons inovasi baru oleh penyerang [8]. Administrator IT dan pemerintah sering mencoba menghentikan phishing sebelum dimulai dengan mengganggu situs web phishing dan pengiriman email massal [9]. Tetapi garis pertahanan terakhir adalah pengguna akhir; pesan phishing yang melewati pertahanan lain masih dapat dideteksi atau diabaikan oleh pengguna akhir untuk mencegah kerugian.

Dalam penelitian ini, kami mensurvei pengguna email tanpa pelatihan atau keahlian IT dan menanyakan mereka tentang pengalaman spesifik dengan email phishing yang mereka terima. Sekitar setengah dari responden survei dapat mengidentifikasi insiden spesifik yang kemudian mereka jawab dengan pertanyaan terperinci. Berdasarkan model Wash [2] tentang bagaimana ahli IT mendeteksi email phishing, kami menanyakan setiap orang tentang apa yang mereka perhatikan dari email tersebut, apa yang mereka harapkan dalam email tersebut, apa yang membuat mereka curiga terhadap email tersebut, investigasi apa yang mereka lakukan, bagaimana mereka memutuskan apakah email tersebut sah, dan apa yang akhirnya mereka lakukan dengan email tersebut.

Dari pertanyaan-pertanyaan ini, kami dapat mengidentifikasi pola bagaimana pengguna email yang bukan ahli IT saat ini mengidentifikasi email penipuan phishing di kotak masuk mereka. Sebagian besar penelitian melihat kegagalan deteksi phishing dan apa yang perlu diperbaiki; sebaliknya kami membandingkan non-ahli dengan para ahli Wash dan mengidentifikasi apa yang berhasil dengan baik yang dapat kita kembangkan. Kami menemukan bahwa pengguna email sering membawa pengetahuan unik ke proses identifikasi ini yang tidak dimiliki oleh metode pencegahan phishing lainnya, seperti apakah email tersebut diharapkan atau tidak dan seperti apa email seperti ini biasanya terlihat dan meminta. Kami juga menemukan bahwa pengguna email memiliki kemampuan berharga untuk investigasi, seperti meminta saran dari orang lain, atau memeriksa keabsahan dengan pengirim. Secara keseluruhan, temuan ini menunjukkan bahwa pengguna email dapat menjadi bagian penting dari ekosistem pencegahan phishing, meskipun pelatihan phishing dapat ditingkatkan untuk fokus pada bagaimana pengguna dapat lebih baik menggunakan pengetahuan dan kemampuan unik mereka.

II. The Design, Intent, and Limitations of the Templates

The templates are intended to **approximate the final look and page length of the articles/papers**. **They are NOT intended to be the final produced work that is displayed in print or on IEEEXplore®**. They will help to give the authors an approximation of the number of pages that will be in the

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final version. The structure of the LaTeX files, as designed, enable easy conversion to XML for the composition systems used by the IEEE. The XML files are used to produce the final print/IEEEXplore pdf and then converted to HTML for IEEEXplore.

III. Where to Get LaTeX Help — User Groups

The following online groups are helpful to beginning and experienced LaTeX users. A search through their archives can provide many answers to common questions.

http://www.latex-community.org/
https://tex.stackexchange.com/

IV. Other Resources

See [10]–[14] for resources on formatting math into text and additional help in working with LaTeX.

V. Text

For some of the remainer of this sample we will use dummy text to fill out paragraphs rather than use live text that may violate a copyright.

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$$x = \sum_{i=0}^{n} 2iQ. \tag{1}$$

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VI. Some Common Elements

A. Sections and Subsections

Enumeration of section headings is desirable, but not required. When numbered, please be consistent throughout the article, that is, all headings and all levels of section headings in the article should be enumerated. Primary headings are designated with Roman numerals, secondary with capital letters, tertiary with Arabic numbers; and quaternary with lowercase letters. Reference and Acknowledgment headings are unlike all other section headings in text. They are never enumerated. They are simply primary headings without labels, regardless of whether the other headings in the article are enumerated.

B. Citations to the Bibliography

The coding for the citations is made with the LaTeX `\cite` command. This will display as: see [10].

For multiple citations code as follows: `\cite{ref1,ref2,ref3}` which will produce [10]–[12]. For reference ranges that are not consecutive code as `\cite{ref1,ref2,ref3,ref9}` which will produce [10]–[12], [18]

C. Lists

In this section, we will consider three types of lists: simple unnumbered, numbered, and bulleted. There have been many options added to IEEEtran to enhance the creation of lists. If your lists are more complex than those shown below, please refer to the original "IEEEtran_HOWTO.pdf" for additional options.

A plain unnumbered list:

bare_jrnl.tex
bare_conf.tex
bare_jrnl_compsoc.tex
bare_conf_compsoc.tex
bare_jrnl_comsoc.tex

Fig. 1. Simulation results for the network.

TABLE I
AN EXAMPLE OF A TABLE

One	Two
Three	Four

A simple numbered list:

1) bare_jrnl.tex
2) bare_conf.tex
3) bare_jrnl_compsoc.tex
4) bare_conf_compsoc.tex
5) bare_jrnl_comsoc.tex

A simple bulleted list:

- bare_jrnl.tex
- bare_conf.tex
- bare_jrnl_compsoc.tex
- bare_conf_compsoc.tex
- bare_jrnl_comsoc.tex

D. Figures

Fig. 1 is an example of a floating figure using the graphicx package. Note that `\label` must occur AFTER (or within) `\caption`. For figures, `\caption` should occur after the `\includegraphics`.

Fig. 2(a) and 2(b) is an example of a double column floating figure using two subfigures. (The subfig.sty package must be loaded for this to work.) The subfigure `\label` commands are set within each subfloat command, and the `\label` for the overall figure must come after `\caption`. `\hfil` is used as a separator to get equal spacing. The combined width of all the parts of the figure should do not exceed the text width or a line break will occur.

Note that often IEEE papers with multi-part figures do not place the labels within the image itself (using the optional argument to `\subfloat[]`), but instead will reference/describe all of them (a), (b), etc., within the main caption. Be aware that for subfig.sty to generate the (a), (b), etc., subfigure labels, the optional argument to `\subfloat` must be present. If a subcaption is not desired, leave its contents blank, e.g.,`\subfloat[]`.

VII. TABLES

Note that, for IEEE-style tables, the `\caption` command should come BEFORE the table. Table captions use title case. Articles (a, an, the), coordinating conjunctions (and, but, for, or, nor), and most short prepositions are lowercase unless they are the first or last word. Table text will default to `\footnotesize` as the IEEE normally uses this smaller font for tables. The `\label` must come after `\caption` as always.

VIII. ALGORITHMS

Algorithms should be numbered and include a short title. They are set off from the text with rules above and below the title and after the last line.

[H] Weighted Tanimoto ELM. TRAIN($\mathbf{XT}$) **select randomly** $W \subset \mathbf{X}$ $N_{\mathbf{t}} \leftarrow |\{i : \mathbf{t}_i = \mathbf{t}\}|$ **for** $\mathbf{t} = -1, +1$ $B_i \leftarrow \sqrt{\text{MAX}(N_{-1}, N_{+1})/N_{\mathbf{t}_i}}$ **for** $i = 1, ..., N$ $\hat{\mathbf{H}} \leftarrow B \cdot (\mathbf{X}^T\mathbf{W})/(\not\Vdash\mathbf{X} + \not\Vdash\mathbf{W} - \mathbf{X}^T\mathbf{W})$ $\beta \leftarrow \left(I/C + \hat{\mathbf{H}}^T\hat{\mathbf{H}}\right)^{-1}(\hat{\mathbf{H}}^T B \cdot \mathbf{T})$ **return** $\mathbf{W}, \beta$ /[11] PREDICT($\mathbf{X}$) $\mathbf{H} \leftarrow (\mathbf{X}^T\mathbf{W})/(\not\Vdash\mathbf{X} + \not\Vdash\mathbf{W} - \mathbf{X}^T\mathbf{W})$ **return** SIGN($\mathbf{H}\beta$)

Que sunt eum lam eos si dic to estist, culluptium quid qui nestrum nobis reiumquiatur minimus minctem. Ro moluptat fuga. Itatquiam ut laborpo rersped exceres vollandi repudaerem. Ulparci sunt, qui doluptaquis sumquia ndestiu sapient iorepella sunti veribus. Ro moluptat fuga. Itatquiam ut laborpo rersped exceres vollandi repudaerem.

IX. MATHEMATICAL TYPOGRAPHY AND WHY IT MATTERS

Typographical conventions for mathematical formulas have been developed to **provide uniformity and clarity of presentation across mathematical texts**. This enables the readers of those texts to both understand the author's ideas and to grasp new concepts quickly. While software such as LaTeX and MathType® can produce aesthetically pleasing math when used properly, it is also very easy to misuse the software, potentially resulting in incorrect math display.

IEEE aims to provide authors with the proper guidance on mathematical typesetting style and assist them in writing the best possible article. As such, IEEE has assembled a set of examples of good and bad mathematical typesetting [10]–[14].

Further examples can be found at http://journals.ieeeauthorcenter.ieee.org/wp-content/uploads/sites/7/IEEE-Math-Typesetting-Guide-for-LaTeX-Users.pdf

A. Display Equations

The simple display equation example shown below uses the "equation" environment. To number the equations, use the `\label` macro to create an identifier for the equation. LaTeX will automatically number the equation for you.

$$x = \sum_{i=0}^{n} 2iQ. \tag{2}$$

is coded as follows:

```
\begin{equation}
\label{deqn_ex1}
x = \sum_{i=0}^{n} 2{i} Q.
\end{equation}
```

To reference this equation in the text use the `\ref` macro. Please see (2)
is coded as follows:

```
Please see (\ref{deqn_ex1})
```

B. Equation Numbering

Consecutive Numbering: Equations within an article are numbered consecutively from the beginning of the article to

(a) (b)

Fig. 2. Dae. Ad quatur autat ut porepel itemoles dolor autem fuga. Bus quia con nessunti as remo di quatus non perum que nimus. (a) Case I. (b) Case II.

the end, i.e., (1), (2), (3), (4), (5), etc. Do not use roman numerals or section numbers for equation numbering.

Appendix Equations: The continuation of consecutively numbered equations is best in the Appendix, but numbering as (A1), (A2), etc., is permissible.

Hyphens and Periods: Hyphens and periods should not be used in equation numbers, i.e., use (1a) rather than (1-a) and (2a) rather than (2.a) for subequations. This should be consistent throughout the article.

C. Multi-Line Equations and Alignment

Here we show several examples of multi-line equations and proper alignments.

A single equation that must break over multiple lines due to length with no specific alignment.

$$\begin{multline}\text{The first line of this example}\\ \text{The second line of this example}\\ \text{The third line of this example}\end{multline} \tag{3}$$

is coded as:

```
\begin{multline}
\text{The first line of this example}\\
\text{The second line of this example}\\
\text{The third line of this example}
\end{multline}
```

A single equation with multiple lines aligned at the = signs

$$\begin{aligned} a &= c+d \\ b &= e+f \end{aligned} \tag{4,5}$$

is coded as:

```
\begin{align}
a &= c+d \\
b &= e+f
\end{align}
```

The `align` environment can align on multiple points as shown in the following example:

$$\begin{aligned} x &= y & X &= Y & a &= bc \\ x' &= y' & X' &= Y' & a' &= bz \end{aligned} \tag{6,7}$$

is coded as:

```
\begin{align}
x &= y & X &= Y & a &= bc\\
x' &= y' & X' &= Y' &a' &= bz
\end{align}
```

D. Subnumbering

The amsmath package provides a `subequations` environment to facilitate subnumbering. An example:

$$\begin{subequations}\label{eq:2}\begin{aligned} f &= g & (8a)\\ f' &= g' & (8b)\\ \mathcal{L}f &= \mathcal{L}g & (8c)\end{aligned}\end{subequations}$$

is coded as:

```
\begin{subequations}\label{eq:2}
\begin{align}
f&=g \label{eq:2A}\\
f' &=g' \label{eq:2B}\\
\mathcal{L}f &= \mathcal{L}g \label{eq:2c}
\end{align}
\end{subequations}
```

E. Matrices

There are several useful matrix environments that can save you some keystrokes. See the example coding below and the output.

A simple matrix:

$$\begin{matrix} 0 & 1 \\ 1 & 0 \end{matrix} \tag{9}$$

is coded as:

```
\begin{equation}
\begin{matrix}  0 &  1 \\
1 &  0 \end{matrix}
\end{equation}
```

A matrix with parenthesis

$$\begin{pmatrix} 0 & -i \\ i & 0 \end{pmatrix} \tag{10}$$

is coded as:

```
\begin{equation}
\begin{pmatrix} 0 & -i \\
 i &  0 \end{pmatrix}
\end{equation}
```

A matrix with square brackets

$$\begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix} \tag{11}$$

is coded as:

```
\begin{equation}
\begin{bmatrix} 0 & -1 \\
1 &  0 \end{bmatrix}
\end{equation}
```

A matrix with curly braces

$$\begin{Bmatrix} 1 & 0 \\ 0 & -1 \end{Bmatrix} \tag{12}$$

is coded as:

```
\begin{equation}
\begin{Bmatrix} 1 &  0 \\
0 & -1 \end{Bmatrix}
\end{equation}
```

A matrix with single verticals

$$\begin{vmatrix} a & b \\ c & d \end{vmatrix} \tag{13}$$

is coded as:

```
\begin{equation}
\begin{vmatrix} a &  b \\
c &  d \end{vmatrix}
\end{equation}
```

A matrix with double verticals

$$\begin{Vmatrix} i & 0 \\ 0 & -i \end{Vmatrix} \tag{14}$$

is coded as:

```
\begin{equation}
\begin{Vmatrix} i &  0 \\
0 & -i \end{Vmatrix}
\end{equation}
```

F. Arrays

The `array` environment allows you some options for matrix-like equations. You will have to manually key the fences, but there are other options for alignment of the columns and for setting horizontal and vertical rules. The argument to `array` controls alignment and placement of vertical rules.

A simple array

$$\left(\begin{array}{cccc} a+b+c & uv & x-y & 27 \\ a+b & u+v & z & 134 \end{array} \right) \tag{15}$$

is coded as:

```
\begin{equation}
\left(
\begin{array}{cccc}
a+b+c & uv & x-y & 27\\
a+b & u+v & z & 134
\end{array} \right)
\end{equation}
```

A slight variation on this to better align the numbers in the last column

$$\left(\begin{array}{cccc} a+b+c & uv & x-y & 27 \\ a+b & u+v & z & 134 \end{array} \right) \tag{16}$$

is coded as:

```
\begin{equation}
\left(
\begin{array}{cccr}
a+b+c & uv & x-y & 27\\
a+b & u+v & z & 134
\end{array} \right)
\end{equation}
```

An array with vertical and horizontal rules

$$\left(\begin{array}{c|c|c|c} a+b+c & uv & x-y & 27 \\ \hline a+b & u+v & z & 134 \end{array} \right) \tag{17}$$

is coded as:

```
\begin{equation}
\left(
\begin{array}{c|c|c|r}
a+b+c & uv & x-y & 27\\
a+b & u+v & z & 134
\end{array} \right)
\end{equation}
```

Note the argument now has the pipe "|" included to indicate the placement of the vertical rules.

G. Cases Structures

Many times cases can be miscoded using the wrong environment, i.e., `array`. Using the `cases` environment will save keystrokes (from not having to type the `\left\lbrace`) and automatically provide the correct column alignment.

$$z_m(t) = \begin{cases} 1, & \text{if } \beta_m(t) \\ 0, & \text{otherwise.} \end{cases}$$

is coded as follows:

```
\begin{equation*}
{z_m(t)} =
\begin{cases}
1,&{\text{if}}\ {\beta }_m(t),\\
{0,}&{\text{otherwise.}}
\end{cases}
\end{equation*}
```

Note that the "&" is used to mark the tabular alignment. This is important to get proper column alignment. Do not use `\quad` or other fixed spaces to try and align the columns. Also, note the use of the `\text` macro for text elements such as "if" and "otherwise."

H. Function Formatting in Equations

Often, there is an easy way to properly format most common functions. Use of the `\` in front of the function name will in most cases, provide the correct formatting. When this does not work, the following example provides a solution using the `\text` macro:

$$d_R^{KM} = \arg\min_{d_i^{KM}} \{d_1^{KM}, \ldots, d_6^{KM}\}.$$

is coded as follows:

```
\begin{equation*}
```

```
 d_{R}^{KM} = \underset {d_{l}^{KM}}
 {\text{arg min}} \{ d_{1}^{KM},
 \ldots,d_{6}^{KM}\}.
\end{equation*}
```

I. Text Acronyms Inside Equations

This example shows where the acronym "MSE" is coded using \text{} to match how it appears in the text.

$$\text{MSE} = \frac{1}{n}\sum_{i=1}^{n}(Y_i - \hat{Y_i})^2$$

```
\begin{equation*}
 \text{MSE} = \frac {1}{n}\sum _{i=1}^{n}
(Y_{i} - \hat {Y_{i}})^{2}
\end{equation*}
```

X. Conclusion

The conclusion goes here.

Acknowledgments

This should be a simple paragraph before the References to thank those individuals and institutions who have supported your work on this article.

Appendix
Proof of the Zonklar Equations

Use \appendix if you have a single appendix: Do not use \section anymore after \appendix, only \section*. If you have multiple appendixes use \appendices then use \section to start each appendix. You must declare a \section before using any \subsection or using \label (\appendices by itself starts a section numbered zero.)

References Section

You can use a bibliography generated by BibTeX as a .bbl file. BibTeX documentation can be easily obtained at: http://mirror.ctan.org/biblio/bibtex/contrib/doc/ The IEEEtran BibTeX style support page is: http://www.michaelshell.org/tex/ieeetran/bibtex/

Simple References

You can manually copy in the resultant .bbl file and set second argument of \begin to the number of references (used to reserve space for the reference number labels box).

References

[1] The Radicati Group, "Email statistics report 2019-2023 executive summary," Technical report, The Radicati Group, 2019.

[2] Rick Wash. How experts detect phishing scam emails. Proceedings of the ACM: Human Computer Interaction, CSCW(160), October 2020.

[3] MacEwan University. University Discovers Online Fraud. Press Release, 2017. https://www.macewan.ca/wcm/MacEwanNews/PHISHING_ATTACK.

[4] Rebecca Smith. How a U.S. Utility Got Hacked. Wall Street Journal, Dec 2016.

[5] Eric Lipton, David E Sanger, and Scott Shane. The Perfect Weapon: How Russian Cyberpower Invaded the U.S. The New York Times, dec 2016.

[6] Verizon. 2019 Data Breach Investigations Report. Technical report, 2019.

[7] Symantec. Internet Security Threat Report. Technical Report February, 2019.

[8] Jason Hong. The state of phishing attacks. Communications of the ACM, 55(1):74, Jan 2012.

[9] Joshua T Goodman, Paul S Rehfuss, Robert L Rounthwaite, Manav Mishra, Geoffrey J Hulten, Kenneth G Richards, Aaron H Averbuch, Anthony P Penta, and Roderict C Deyo. Phishing detection, prevention, and notification, October 16 2012. US Patent 8,291,065.

[10] *Mathematics Into Type*. American Mathematical Society. [Online]. Available: https://www.ams.org/arc/styleguide/mit-2.pdf

[11] T. W. Chaundy, P. R. Barrett and C. Batey, *The Printing of Mathematics*. London, U.K., Oxford Univ. Press, 1954.

[12] F. Mittelbach and M. Goossens, *The LaTeXCompanion*, 2nd ed. Boston, MA, USA: Pearson, 2004.

[13] G. Grätzer, *More Math Into LaTeX*, New York, NY, USA: Springer, 2007.

[14] M. Letourneau and J. W. Sharp, *AMS-StyleGuide-online.pdf,* American Mathematical Society, Providence, RI, USA, [Online]. Available: http://www.ams.org/arc/styleguide/index.html

[15] H. Sira-Ramirez, "On the sliding mode control of nonlinear systems," *Syst. Control Lett.*, vol. 19, pp. 303–312, 1992.

[16] A. Levant, "Exact differentiation of signals with unbounded higher derivatives," in *Proc. 45th IEEE Conf. Decis. Control*, San Diego, CA, USA, 2006, pp. 5585–5590. DOI: 10.1109/CDC.2006.377165.

[17] M. Fliess, C. Join, and H. Sira-Ramirez, "Non-linear estimation is easy," *Int. J. Model., Ident. Control*, vol. 4, no. 1, pp. 12–27, 2008.

[18] R. Ortega, A. Astolfi, G. Bastin, and H. Rodriguez, "Stabilization of food-chain systems using a port-controlled Hamiltonian description," in *Proc. Amer. Control Conf.*, Chicago, IL, USA, 2000, pp. 2245–2249.

BIOGRAPHY SECTION

If you have an EPS/PDF photo (graphicx package needed), extra braces are needed around the contents of the optional argument to biography to prevent the LaTeX parser from getting confused when it sees the complicated `\includegraphics` command within an optional argument. (You can create your own custom macro containing the `\includegraphics` command to make things simpler here.)

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