Module: Writing skills and Office

Chapter 2 : How to Write Different Types of Documents

Academic and Professional Writing Formats

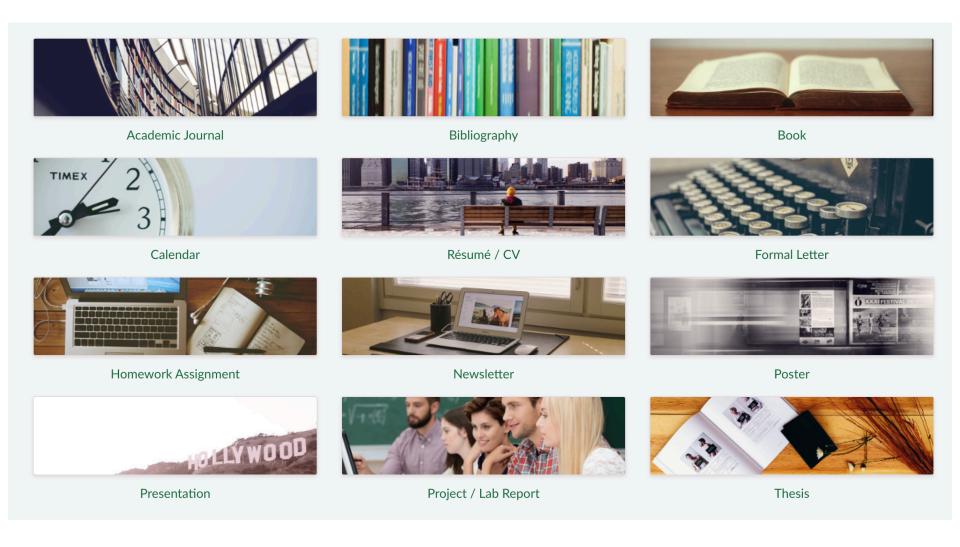
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Introduction

- This presentation provides a comprehensive overview of various document types that are commonly used in academic and professional contexts.
- Importance: Understanding the structure and purpose of each document type ensures effective communication, clarity, and professionalism.
- Aim: To offer clear guidelines on how to write different types of documents, from academic journals to résumés, posters, and more.

Different Types of Documents



Academic Journal

Purpose: Report original research or present theoretical discussions.

- Structure:
 - 1. Title and Abstract
 - 2. Introduction
 - 3. Literature Review
 - 4. Methodology
 - 5. Results
 - 6. Discussion
 - 7. Conclusion
 - 8. References
 - Follow submission guidelines.
 - Be concise in the abstract and conclusion.
 - Ensure accurate citations.

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LLM-Based Edge Intelligence: A Comprehensive Survey on Architectures, Applications, **Security and Trustworthiness**

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ABSTRACT The integration of Large Language Models (LLMs) and Edge Intelligence (EI) introduces a groundbreaking paradigm for intelligent edge devices. With their capacity for human-like language processing and generation, LLMs empower edge computing with a powerful set of tools, paving the way for a new era of decentralized intelligence. Yet, a notable research gap exists in obtaining a thorough comprehension of LLM-based EI architectures, which should incorporate crucial elements such as security, optimization, and responsible development. This survey aims to bridge this gap by providing a comprehensive resource for both researchers and practitioners. We explore LLM-based EI architectures in-depth, carefully analyzing state-of-the-art paradigms and design decisions. To facilitate efficient and scalable edge deployments, we perform a comparative analysis of recent optimization and autonomy techniques specifically designed for resource-constrained edge environments. Additionally, we shed light on the extensive potential of LLM-based EI by demonstrating its varied practical applications across a wide range of domains. Acknowledging the utmost importance of security, our survey thoroughly investigates potential vulnerabilities inherent in LLM-based EI deployments. We explore corresponding 5 defense mechanisms to protect the integrity and confidentiality of data processed at the edge. In conclusion, highlighting the essential aspect of trustworthiness, we outline best practices and guiding principles for

Bibliography

Purpose: To list all sources used in your research.

- Structure:
 - Alphabetical order by author's last name.
 - Follow the citation style (APA, MLA, Chicago).
 - Include author, title, publication date, and source.
- Use tools like EndNote.
 - Double-check the citation style formatting.

Different Styles of Bibliography

- **APA Style (American Psychological Association**):
 - **Format:** Author(s). (Year). Title. Publisher.
 - **Example:** Smith, J. (2020). The Art of Research. Oxford University Press.
- **MLA Style (Modern Language Association):**
 - **Format:** Author(s). *Title*. Publisher, Year.
 - **Example:** Smith, John. *The Art of* Research. Oxford University Press, 2020.
- **Chicago Style:**
 - **Format:** Author(s). *Title*. Place of Publication: Publisher, Year.
 - **Example:** Smith, John. *The Art of* Research. Chicago: Oxford University Press, 2020.
- **IEEE Style:**
 - **Format:** Author(s), "Title," Journal, vol. #, no. #, pp. xx-xx, Year.
 - **Example:** J. Smith, "The art of research," Journal of Research, vol. 10, no. 5, pp. 50-60, 2020.

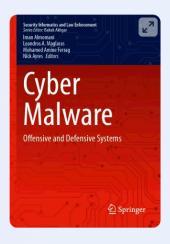
REFERENCES

- [1] S. Pinker, The Language Instinct: How the Mind Creates Language. London, U.K: Penguin, 2003.
- [2] A. M. Turing, Computing Machinery and Intelligence. Dordrecht, The Netherlands: Springer, 2009.
- [3] W. X. Zhao et al., "A survey of large language models," 2023, arXiv:2303.18223.
- [4] E. M. Bender and A. Koller, "Climbing towards NLU: On meaning, form, and understanding in the age of data," in Proc. 58th Annu. Meeting Assoc. Comput. Linguist., 2020, pp. 5185-5198.
- [5] F. Jelinek, Statistical Methods for Speech Recognition. Cambridge, MA, USA: MIT Press, 1998.
- [6] Y. Bengio, R. Ducharme, and P. Vincent, "A neural probabilistic language model," in Proc. Adv. Neural Inf. Process. Syst., vol. 13, 2000, pp. 1–11.
- [7] T. Mikolov, M. Karafiát, L. Burget, J. Cernockỳ, and S. Khudanpur, "Recurrent neural network based language model," in Proc. Interspeech, vol. 2, 2010, pp. 1045-1048.
- [8] A. Vaswani et al., "Attention is all you need," in Proc. Adv. Neural Inf. Process. Syst., vol. 30, 2017, pp. 1-15.
- [9] J. Sarzynska-Wawer et al., "Detecting formal thought disorder by deep contextualized word representations," Psychiat. Res., vol. 304, Oct. 2021, Art. no. 114135.
- [10] B. Min et al., "Recent advances in natural language processing via large pre-trained language models: A survey," ACM Comput. Surveys, vol. 56, no. 2, pp. 1-40, 2023.
- [11] A. Radford, Narasimhan, T. Salimans, and Sutskever. "Improving language understanding by generative pre-training." 2018. [Online]. Available: https://paperswithcode.com/paper/improving-languageunderstanding-by
- [12] A. Radford, J. Wu, R. Child, D. Luan, D. Amodei, and I. Sutskever, "Language models are unsupervised multitask learners," OpenAI Blog, vol. 1, no. 8, p. 9, 2019.
- [13] J. Devlin, M.-W. Chang, K. Lee, and K. Toutanova, "BERT: Pre-training of deep bidirectional transformers for language understanding," 2018, arXiv:1810.04805.
- [14] J. Wei et al., "Emergent abilities of large language models," 2022, arXiv:2206.07682.
- [15] J. Achiam et al., "GPT-4 technical report," 2023, arXiv:2303.08774.
- [16] F. Petroni et al., "Language models as knowledge bases?" 2019, arXiv:1909.01066.
- [17] E. M. Bender, T. Gebru, A. McMillan-Major, and S. Shmitchell, "On the dangers of stochastic parrots: Can language models be too big?" in Proc. ACM Conf. Fairness, Accountability, Transparency, 2021, pp. 610-623.
- [18] Y. Chen, Y. Yan, Q. Yang, Y. Shu, S. He, and J. Chen, "Confidant: 7 Customizing transformer-based LLMs via collaborative edge training," 2023, arXiv:2311.13381.

Book

 Purpose: To deliver comprehensive content on a subject.

- Structure:
 - 1. Title and Introduction
 - 2. Chapters (Organized logically)
 - 3. Conclusion
 - 4. Appendices and Index (if needed)



Cyber Malware

Offensive and Defensive Systems

Book | © 2024

Overview

Editors: Iman Almomani, Leandros A. Maglaras, Mohamed Amine Ferrag, Nick Ayres

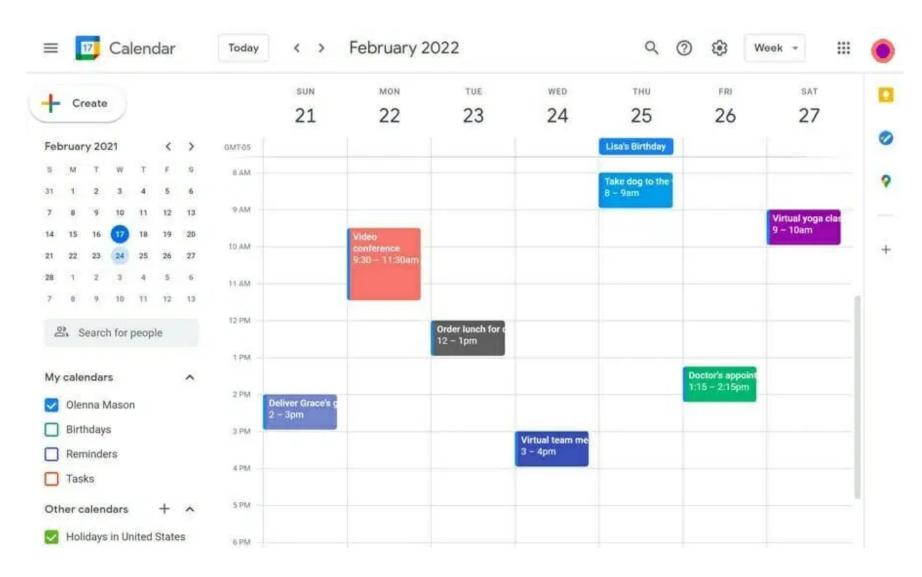
- Presents theoretical, technical, and practical knowledge on defending against malware attacks
- Covers malware applications using machine learning algorithms, Blockchain and AI, forensics tools, and much more
- Includes perspectives from experts in cybersecurity at different institutions, including academia

Part of the book series: Security Informatics and Law Enforcement (SILE)

Calendar

Purpose: Track important events or deadlines.

- Structure:
 - Include dates and events.
 - Use monthly or weekly format.
 - Use tools like Google Calendar or Excel.



Résumé / CV

 Purpose: Summarize professional experience, skills, and education.

• Structure:

- 1. Personal Information
- 2. Professional Summary
- 3. Work Experience
- 4. Education
- 5. Skills
- 6. References

Your Name Here, Ph.D.

X @overleaf_example

in example

http://example.example.org/



Employment History

2014 - · · · ·

Community Witch, Village of Frying Pans.

2013 - 2015

Lecturer. Information Technology Department, School of Engineering, Science and Technology, XYZ College.

Education

2009 - 2013

Ph.D., Unseen University High Energy Magic.

Thesis title: Low-Cost Mana Generation in Under-Resouced Evironments.

2003 – 2006

M.Sc. Computer Science, Unseen in High Energy Magic.

Thesis title: Applying ant algorithms in automatic design of novel magic charms.

M.Sc. Computer Science, Unseen in High Energy Magic.

Thesis title: Applying ant algorithms in automatic design of novel magic charms.

Research Publications

Journal Articles

- L. T. Lim, R. T. Chiew, E. K. Tang, A. G. Rusli, and Y. Naimah, "Digitising a machine-tractable version of Kamus Dewan with TEI-P5," *PeerJ Preprints*, vol. 4, e2205V1, 2016, ISSN: 2167-9843. ODI: 10.7287/peerj.preprints.2205V1.
- F. Bond, L. T. Lim, E. K. Tang, and H. Riza, "The combined Wordnet Bahasa," Nusa: Linguistic studies of languages in and around Indonesia, vol. 57, pp. 83–100, 2014. URL: http://hdl.handle.net/10108/79286.
- L. T. Lim, L.-K. Soon, T. Y. Lim, E. K. Tang, and B. Ranaivo-Malançon, "Lexicon+TX: Rapid construction of a multilingual lexicon with under-resourced languages," *Language Resources and Evaluation*, vol. 48, no. 3, pp. 479–492, 2014, ISSN: 1574-020X. ODI: 10.1007/s10579-013-9253-0.
- **L. T. Lim**, B. Ranaivo-Malançon, and E. K. Tang, "Low cost construction of a multilingual lexicon from bilingual lists," *Polibits*, vol. 43, pp. 45–51, 2011.

Formal Letter

Purpose: Communicate professionally in formal situations.

- Structure:
 - 1. Sender's Address
 - 2. Date
 - 3. Recipient's Address
 - 4. Salutation
 - 5. Body
 - 6. Closing
 - 7. Signature

Homework Assignment

Purpose: Complete academic tasks.

- Structure:
 - 1. Title Page (if required)
 - 2. Introduction
 - 3. Content/Answers
 - 4. Conclusion
 - 5. References (if needed)

Newsletter

 Purpose: Inform a specific audience about updates or events.

• Structure:

- 1. Header with Title
- 2. Introductory Message
- 3. News Sections
- 4. Closing/Call to Action
- 5. Contact Information

Poster

Purpose: Visually present research or information.

- Structure:
 - 1. Title
 - 2. Introduction
 - 3. Methods/Approach
 - 4. Results
 - 5. Conclusion
 - Keep text minimal and visuals impactful.
 - Focus on readability.

Presentation

Purpose: Deliver information orally and visually.

- Structure:
 - 1. Title Slide
 - 2. Introduction
 - 3. Main Points (Slides)
 - 4. Conclusion
- - Keep slides simple.
 - Focus on key points.

Project / Lab Report

Purpose: Document experiments or projects.

- Structure:
 - 1. Title
 - 2. Abstract
 - 3. Introduction
 - 4. Methodology
 - 5. Results
 - 6. Discussion
 - 7. Conclusion
 - 8. References

Thesis

• Purpose: Demonstrate mastery through research.

- Structure:
 - 1. Title Page
 - 2. Abstract
 - 3. Introduction
 - 4. Literature Review
 - 5. Methodology
 - 6. Results
 - 7. Discussion
 - 8. Conclusion
 - 9. References