

1 Your Manuscript Title Here: A Template for Scientific 2 Writing

3 First Author^a, Second Author^b, Corresponding Author^{a,*}

4 ^a*First Institution, Department, City, Country*

5 ^b*Second Institution, Department, City, Country*

6 **Abstract**

7
8 This is a template abstract. Replace this text with your manuscript
9 abstract. The abstract should concisely summarize your research objectives,
10 methods, key findings, and conclusions. Typically 150-250 words, it should
11 provide readers with a complete overview of your work without requiring
12 them to read the full manuscript. Include your most important results and
13 their broader implications. Avoid citations and undefined abbreviations in
14 the abstract.

15 *Keywords:* keyword one, keyword two, keyword three, keyword four,
16 keyword five

17 ~ 2 figures, 0 tables, 67 words for abstract, and 602 words for main
18 text

19 **1. Introduction**

20 This is the introduction section of your manuscript. Replace this place-
21 holder text with your actual introduction content.

22 The introduction should provide context for your research by:

- 23 • Establishing the broader scientific context and importance of your re-
24 search area

*Corresponding author. Email: corresponding.author@institution.edu

- 25 • Reviewing relevant previous work [?]
- 26 • Identifying gaps or limitations in existing knowledge
- 27 • Clearly stating your research objectives and hypotheses
- 28 • Briefly outlining your approach and key contributions

29 Your introduction should flow logically from general background to specific research questions. Each paragraph should connect smoothly to the next, building a compelling case for why your research is needed and what it contributes to the field.

33 Consider the following structure:

- 34 1. Background and significance (1-2 paragraphs)
- 35 2. Review of related work (2-3 paragraphs)
- 36 3. Identification of research gaps (1 paragraph)
- 37 4. Research objectives and hypotheses (1 paragraph)
- 38 5. Overview of approach (1 paragraph)

39 Replace this template text with your actual introduction content, maintaining clear logical flow and appropriate citations throughout.

41 **2. Methods**

42 This section describes your research methodology. Replace this placeholder text with detailed descriptions of your experimental design, data collection, and analysis procedures.

45 *2.1. Study Design*

46 Describe your overall experimental or computational design. Include information about:

- 48 • Study type (experimental, observational, computational, etc.)
- 49 • Sample selection criteria

- 50 • Ethical approvals and informed consent procedures
- 51 • Timeline and study phases

52 *2.2. Data Collection*

53 Detail how you collected your data:

- 54 • Data sources and acquisition methods
- 55 • Instruments or tools used
- 56 • Sampling procedures
- 57 • Quality control measures

58 *2.3. Data Analysis*

59 Explain your analytical approach:

- 60 • Statistical methods employed
- 61 • Software and computational tools used
- 62 • Processing pipelines
- 63 • Significance thresholds and corrections for multiple comparisons

64 Provide enough detail that other researchers could reproduce your work.

65 Reference any novel methods or modifications to existing protocols [?].

66 **3. Results**

67 Present your findings in a clear, logical sequence. Replace this placeholder
68 text with your actual results.

69 *3.1. Overview of Dataset*

70 Begin with descriptive statistics about your dataset or study population.
71 For example:

- 72 • Sample size and characteristics
- 73 • Data quality metrics
- 74 • Descriptive statistics

75 *3.2. Primary Findings*

76 Present your main results, organized by research question or hypothesis.
77 Use figures and tables to illustrate key findings. For example, Figure 1 shows
78 an example result.

79 Describe statistical comparisons and their significance. Report effect sizes
80 along with p-values. For instance: “The treatment group showed significantly
81 higher performance (mean = XX.X \pm SD) compared to control (mean =
82 YY.Y \pm SD), $t(df) = ZZ.Z$, $p < 0.001$, Cohen’s $d = W.WW$.”

83 *3.3. Secondary Analyses*

84 Present additional analyses that support or extend your primary findings.
85 Include:

- 86 • Subgroup analyses
- 87 • Sensitivity analyses
- 88 • Additional statistical tests
- 89 • Exploratory findings

90 Reference your figures (Figure 2) and tables (Table ??) appropriately
91 throughout the results section. Let the data speak for itself - save interpretation for the Discussion section.
92

93 4. Discussion

94 Interpret your findings and place them in the broader scientific context.
95 Replace this placeholder text with your discussion.

96 4.1. Principal Findings

97 Begin by restating your main findings without simply repeating the Re-
98 sults section. Explain what your results mean and how they address your
99 research questions or hypotheses. For example: “Our study demonstrates
100 that [main finding], which supports the hypothesis that [interpretation].”

101 4.2. Comparison with Previous Work

102 Compare your findings with existing literature:

- 103 • How do your results confirm or contradict previous studies [?]?
- 104 • What novel contributions does your work provide?
- 105 • How do you reconcile any discrepancies with prior research?

106 4.3. Mechanisms and Implications

107 Discuss the underlying mechanisms or theoretical implications of your
108 findings. Consider:

- 109 • Biological, physical, or theoretical mechanisms
- 110 • Broader implications for the field
- 111 • Potential applications of your findings
- 112 • Future research directions

113 4.4. *Limitations*

114 Acknowledge the limitations of your study honestly:

- 115 • Sample size or selection limitations
- 116 • Methodological constraints
- 117 • Alternative explanations for your findings
- 118 • Generalizability considerations

119 4.5. *Conclusions*

120 Conclude with a concise summary of your key findings and their signif-
121 icance. Avoid introducing new information or overstating your conclusions.
122 End with a forward-looking statement about future research directions or
123 practical implications.

124 **References**

125 **Data Availability Statement**

126 The NeuroVista dataset used in this study is publicly available through
127 the International Epilepsy Electrophysiology Portal (IEEG.org) at <https://www.ieeg.org>. Access requires registration and approval for research pur-
128 poses.

130 The processed PAC databases and analysis code are available at <https://github.com/ywatanabe1989/neurovista>. GPU-accelerated PAC calcu-
131 lation code is available as a standalone Python package ‘gpac’ at <https://github.com/ywatanabe1989/gPAC>. The SciTeX Python utilities used for re-
132 producible computing is available at <https://github.com/ywatanabe1989/SciTeX>.
133
134
135

136 For questions regarding data access or analysis procedures, please contact
137 the corresponding author.

138 **Ethics Declarations**

139 All study participants provided their written informed consent ...

140 **Author Contributions**

141 Y.W., T.Y., and D.G. conceptualized the study ...

142 **Acknowledgments**

143 This research was funded by funding bodies here

144 **Declaration of Interests**

145 The authors declare that they have no competing interests.

146 **Declaration of Generative AI in Scientific Writing**

147 The authors employed large language models such as Claude (Anthropic
148 Inc.) for code development and complementing manuscript’s English lan-
149 guage quality. After incorporating suggested improvements, the authors
150 meticulously revised the content. Ultimate responsibility for the final content
151 of this publication rests entirely with the authors.

152 **Tables**

153 **Tables**

Table 1 – Table 0: Placeholder

To add tables to your manuscript:

1. Place CSV files in `caption_and_media/` with format `XX_description.csv`
2. Create matching caption files `XX_description.tex`
3. Reference in text using `Table~\ref{tab:XX_description}`

Example: `01_seizure_count.csv` with `01_seizure_count.tex`

Step	Instructions
1. Add CSV	Place file like <code>01_data.csv</code> in <code>caption_and_media/</code>
2. Add Caption	Create <code>01_data.tex</code> with table caption
3. Compile	Run <code>./compile -m</code> to process tables
4. Reference	Use <code>\ref{tab:01_data}</code> in manuscript

FIGURE PLACEHOLDER

Figure ID: 01_example_figure

Place your image file at:

[01_manuscript/contents/figures/caption_and_media/01_example_figure.\[png|tif|jpg|svg|mmd|pptx\]](#)

Supported formats: PNG, TIF/TIFF, JPG/JPEG, SVG, MMD, PPTX

Then run: `./compile_manuscript`

Reference in LaTeX as:

`Figure~\ref{fig:1_example_figure}`

This placeholder will be automatically replaced
when you add the actual image file.

Figure 1 – Example figure caption. This is a template showing how to include figures in your manuscript. Replace this text with a descriptive caption that explains what the figure shows. Include panel labels (A, B, C) if using multi-panel figures. Explain abbreviations and symbols used in the figure. Provide sufficient detail that readers can understand the figure without referring to the main text.

FIGURE PLACEHOLDER

Figure ID: 02_another_example

Place your image file at:

[01_manuscript/contents/figures/caption_and_media/02_another_example.\[png|tif|jpg|svg|mmd|p](#)

Supported formats: PNG, TIF/TIFF, JPG/JPEG, SVG, MMD, PPTX

Then run: `./compile_manuscript`

Reference in LaTeX as:

`Figure~\ref{fig:2_another_example}`

This placeholder will be automatically replaced
when you add the actual image file.

Figure 2 – Another example figure. Use this template to add additional figures to your manuscript. Each figure should be placed in a separate .tex file in this directory. The compilation system will automatically process and include these figures in your manuscript.