

# Detailed Abstract Style Guide

**Abstract - Basic guidelines for preparing abstracts for papers appearing in IEEE publications are presented. The attributes of a good abstract are reviewed and a step-by-step procedure for their construction is suggested. Examples demonstrating the desired characteristics are provided.**

## Introduction

The usefulness of technical articles is greatly enhanced if their contents are summarized by a short, descriptive title and a well written abstract. These are the starting points that enable searchers (librarians or end-users in the research community) to find the documents that are of most interest to them. To accommodate the needs of researchers, libraries, and other important information services, and to ensure that the material published by the IEEE is readily retrievable from print or machine-searchable sources, all IEEE-published technical articles should include an abstract. Prepared according to the procedures outlined in this article, the abstract is of value to current readers and provides the basis for later computer-assisted search and retrieval of the published article from bibliographic databases.

## What Constitutes a Good Abstract?

An abstract of an article is a collection of statements that comprises the essential points of the parent article. A good abstract enhances the value of a technical article for everyone concerned--author, reader, researcher, and indexer. It must be able to stand alone as a self-contained unit, a complete report in miniature. Superlatives should be omitted. It should not contain graphs, tables, or illustrations. It should be informative and present as much as possible of the quantitative or qualitative information contained in the article. It should be between 150 and 250 words long, or as short as possible without omitting essential information or endangering its accuracy. It should tell: what is actually presented, measured, theorized, studied, or reported; how it was/is measured, analyzed, constructed, derived, or fabricated; and why it is so. Note any results, conclusions, or theories used to explain what was reported. Why is not always present or known; an article may simply report an observation of a phenomenon. However, whatever results can be included, the abstract becomes more valuable.

## How to Prepare Your Abstracts

Read the article, and list, in order, the topics that are discussed. Review each topic in turn to see if a direct informative statements of the result achieved can be written. Otherwise give a listing of the important topics studied of discussed. Compose a first sentence that will clearly establish the context and scope of the article. Edit the completed abstract for style. Use definite statements instead of generalities. Use the shortest clear expression for each thought. Use language appropriate to the potential reader of the article (who may not be an expert). Make style and grammar consistent throughout. Eliminate obscure abbreviations and define all abbreviations on first use. Do not cite other articles unless your paper is a continuation of, or is directly based upon, a specific, previously published article, or if the citation is crucial to the understanding of your work. In this case, give the complete citation enclosed in square brackets, even if the citation also appears in the reference list. Check that the abstract meets these five criteria:

1. The abstract tells the prospective reader what the article is about, in language appropriate to the field.
2. The abstract states the principal results and conclusions of the article when they are of a nature that permits brief statement.
3. The abstract is no longer than necessary, typically 150 to 250 words, longer only if the complexity of the article demands it.
4. The abstract and title contain the information needed to index the article.
5. The abstract does not contain concepts or conclusions beyond those discussed or arrived at in the article itself.

## Examples

### *Example of a Poor Title and Abstract*

The following title and abstract are merely indicative of the work done and provide few technical details.

*Title:* "Laser Radar for Tracking Airborne Targets,"

*Abstract:* An instrumentation tracker that quickly shows the position of high-speed targets with great precision is described. Range is determined by a FM-CW radar. Azimuth and elevation angles are recorded on magnetic tape or read out to a computer.

### *Example of a Good Title and Abstract*

The following title and abstract are indicative of the work done and informative as to the engineering techniques and the limits of precision.

*Title:* "A Precise Optical Instrumentation Radar"

*Abstract:* An instrumentation tracker is described that provides real-time positional data on high-speed cooperative targets with a precision  $< 1$  m at ranges between 300 m and 10 km. Unambiguous range is determined by a precise digital frequency-modulation-continuous-wave (FM-CW) ranging technique using a target-mounted beacon and a narrow laser ranging beam. This system permits measurement of target position to values much less than target dimension. Azimuth and elevation angles are read out by precision shaft angle encoders and recorded in binary form, along with range and time, on magnetic tape or directly to a real-time computer.

## Conclusion

An abstract, by its content, form, and style, should preview the rest of the article. The abstract is often the only part of a research article that will ever be examined by colleagues or researchers. That abstract will be used to decide if its parent article will be ignored or if it merits further attention. Therefore, authors do themselves a disservice when the abstract fails to answer the question, "What is this article really about?"