

《电子设计工程》英文摘要写作要求

1. 英文摘要写作原则

1.1 完整性

英文摘要提供的信息必须是完整的，要独立成文。

读者通过英文摘要就能对论文的主要目的，解决问题的主要方法、过程，及主要的结果、结论和文章的创新、独到之处，有一个较为完整的了解。

1.2 定量分析

注重定量分析是科学研究的重要特征之一，在写作英文摘要时，要避免过于笼统的、空洞无物的一般论述和结论，要尽量利用文章中的最具体的语言来阐述方法、过程、结果和结论，这样既可以给读者一个清晰的思路，又可以使你的论述言之有物、有根有据，使读者对你的研究工作有一个清晰、全面的认识。

1.3 创新点

英文摘要中要明确突出自己的贡献，突出自己的创新、独到之处。

西方的读者在阅读论文时也总是特别关注论文有什么创新独到之处，否则就认为论文是不值得读的。

1.4 字数

文摘长一般不超过 150 words，不少于 100 words，特殊情况也可不受字数限制，如 IEEE Transactions on Communications 的摘要一般在 250 个单词左右。但目的、主要方法(过程)、主要结果三部分不要少于 100 words。

论文中的中、英文摘要不必强求一致。

2. 英文摘要的结构

英文摘要分为：“目的(Purposes)”，主要的研究“过程(Procedures)”及所采用的“方法(Methods)”，主要“结果(Results)”和得出的重要“结论(Conclusions)”。如有可能，还应尽量提一句论文结果和结论的应用范围和应用情况。也就是说，要写好英文摘要，作者必须回答好以下几个问题：

- 1) 本文的目的或要解决的问题(What I want to do?)
- 2) 解决问题的方法及过程(How I did it?)
- 3) 主要结果及结论(What results did I get and what conclusions can I draw)
- 4) 本文的创新、独到之处(What is new and original in this paper?)

根据《EI》对英文摘要的写作要求，英文摘要的写作并没有一成不变的格式，但一般来说，英文摘要是对原始文献不加诠释或评论的准确而简短的概括，并要求它能反映原始文献的主要信息。

2.1 目的 (What I want to do?)

“目的”部分主要说明作者写作此文的目的，或本文主要解决的问题。一般来说，一篇好的英文摘要，一开头就应该把作者本文的目的或要解决的主要问题非常明确地交待清楚。必要时，可利用论文中所列的最新文献，简要介绍前人的工作，但这种介绍一定要极其简练。在这方面，《EI》提出了两点具体要求：

- 1) Eliminate or minimize background information(不谈或尽量少谈背景信息).
- 2) Avoid repeating the title or part of the title in the first sentence of the abstract (避免在摘要的第一句话重复使用题目或题目的一部分)。

2.2 过程与方法(How I did it?)

“过程及方法”部分主要说明作者主要工作过程及所用的方法，也应包括众多的边界条件，使用的主要设备和仪器。

要避免阐述过程与方法时，泛泛而谈、空洞无物，只有定性的描述，使读者很难清楚地了解论文中解决问题的过程和方法。因此，在说明过程与方法时，应结合(指向)论文中的公式、实验框图等来进行阐述，这样可以既给读者一个清晰的思路，又给那些看不懂中文(但却可以看懂公式、图、表等)的英文读者以一种可信的感觉。

2.3 结果和结论(What results did I get and what conclusions can I draw?)

在写作结果和结论部分时，最好采用定量语言、科学语言。可结合实验结果或仿真结果的图、表、曲线等来加以说明，使结论部分言之有物，有根有据；同时，对那些看不懂中文的英文读者来说，通过这些图表，结合英文摘要的说明就可以比较清楚地了解论文的结果和结论。如有可能，在结尾部分还可以将论文的结果和他人最新的研究结果进行比较，以突出论文的主要贡献和创新、独到之处(回答 What is new and original in this paper)。

3. 摘要写作细则

3.1 提高英文摘要文字效能

《EI》很看重英文摘要的文字效能。为了提高文字效能，应尽量删去所有多余的字、句。

3.2 尽量使用短句

长句容易造成语义不清，但要避免单调和重复。

3.2 时态

描述作者的工作一般用过去时态(因为工作是在过去做的)。如：

We proposed a method for embedding binary data into JPEG bitstreams and extracting embedded data from JPEG bitstreams using the standard JPEG decoder.

目前也有很多作者在描述论文主要工作时也采用一般现在时。如

In this paper, two new fast gradient algorithms which perform 2-D block adaptive filtering are presented.

一般现在时用于说明研究目的、叙述研究内容、描述结果、得出结论、提出建议或讨论等。分别举例如下：

Simulations using extracting embedded binary data as post-processing are presented to quantify some performance factors of concern.

Therefore, employing the technique can not only explore more physical insights into the converters in a family but reveal more relationships among the soft switching converters over conventional approaches. Measured results from a prototype have verified the feasibility of the derived single-stage converters

涉及到公认事实、自然规律、永恒真理等，当然也要用一般现在时。

需要指出的是，用一般过去时描述的发现、现象，往往是尚不能确认为自然规律、永恒真理的，而只是当时如何；所描述的研究过程也明显带有过去时间的痕迹。

现在完成时和过去完成时。完成时少用，但不是不用。现在完成时把过去发生的或过去已完成的事情与现在联系起来，而过去完成时可用来表示过去某一时间以前已经完成的事情，或在一个过去事情完成之前就已完成的另一过去行为。例如：Concrete has been studied for many years. Man has not yet learned to store the solar energy.

3.4 语态

科技论文中被动语态的使用在 1920--1970 年曾比较流行，但由于主动语态的表达更为准确，且更易阅读，因而目前大多数期刊都提倡使用主动态。国际知名科技期刊“Nature”，“Cell”等尤其如此，主动语态的使用十分普遍。

能使用主动语态的就不要采用被动语态，如：写成 A exceeds B 比写成 B is exceeded by A 更好。

The author systematically introduces the history and development of the tissue culture of poplar 比 The history and development of the tissue culture of poplar are introduced systematically 语感要强。必要时，The author systematically 都可以去掉，而直接以 Introduces 开头。

如果强调动作承受者，还是采用被动语态为好。例如：In this case, a greater accuracy in measuring distance might be obtained.

3.5 英文摘要的人称

原来摘要的首句多用第三人称 This paper...等开头，现在倾向于采用更简洁的被动语态或原形动词开头。例如：To describe..., To study..., To investigate..., To assess..., To determine..., The torrent classification model and the hazard zone mapping model are developed based on the geography information system.行文时最好不用第一人称，以方便文摘刊物的编辑刊用。

3.5 特殊字符 (Special Characters)

特殊字符主要指各种数学符号及希腊字母。对他们的录入，Ei 有特殊的规定，希望在文摘中尽量少用特殊字符及数学表达式，因为它们的输入极为麻烦，而且易出错，影响文摘本身的准确性，应尽量取消或用文字表达，如“导热系数 ρ ”中的“ ρ ”即可去掉。

一般不再摘要中出现公式。公式应设法用文字表示。

3.7 标点符号

- 1) 英文中没有顿号“、”和“()”。
- 2) 多重单句可用分号“;”隔开, 注意分号后单词首字母用小写。
- 3) 一般不用逗号连接只有两个并列的成分或句子, 但是两个并列的对等形容词同时修饰一个名词时, 可用逗号连接。
- 4) 冒号可用于引出一系列并列的成分或句子。在冒号前可以是完整的句子, 这时, 冒号后的并列成分(或句子)是说明前句中某一成分的细节。如, The patients were divided into three groups: normal weight, mildly obese and markedly obese;冒号前也可以不是完整的句子, 这时, 冒号后就是前句中所残缺的成分。如: Expression of cyclinD1 mRNA was determined by Northern blot in: normal lymph node, lymphoid hyperplasia and mantle zone lymphoma.

4. 注意事项

4.1 冠词

主要是定冠词 the 易被漏用。the 用于表示整个群体、分类、时间、地名以外的独一无二的事物、形容词最高级等较易掌握, 用于特指时常被漏用。这里有个原则, 即当我们用 the 时, 听者或读者已经确知我们所指的是什么。例如: The author designed a new machine. The machine is operated with solar energy. 由于现在缩略语越来越多, 要注意区分 a 和 an, 如 an X ray.

4.2 数词

避免用阿拉伯数字作首词, 如: Three hundred *Dendrolimus tabulaeformis* larvae are collected...中的 Three hundred 不要写成 300.

4.3 单复数

一些名词单复数形式不易辨认, 从而造成谓语形式出错。

4.4 文摘第一句话切不可与题名 (Title) 重复

Ei 中每篇文摘记录都是与题名连排的, 只是题名用黑体排印, 因此可以认为题名便是文摘的第一句话。遇到此种重复情况请改写, 要有所变化, 可补充一些细节。

如标题为: Expression of RACK1 in primary colon cancers, 则摘要第一句话不要写为 To detect the expression of RACK1 in primary colon cancers. 最好改为 To detect RACK1 gene over-expressed in primary colon adenocarcinoma by in situ hybridisation.

4.5 可用动词的情况尽量避免用动词的名词形式

如: 用 "Thickness of plastic sheets was measured", 不用 "Measurement of thickness of plastic sheet was made".

4.6 避免使用长系列形容词或名词来修饰名词

可用预置短语分开或用连字符(hyphen)断开名词词组, 作为单位形容词(一个形容词)。如: 应用 "The chlorine-containing propylene-based polymer of high melt index" 代替 "The chlorine containing high melt index propylene based polymer".

4.7 语言要简练，但不得使用电报语言

如：用"increase"代替"has been found to increase".

"Adsorption nitrobenzene on copper chronite investigation"应为"Adsorption of nitrobenzene on copper chronite was investigated".

4.8 文词要淳朴无华，不用多姿多态的文学性描述手法。

如"Working against time on hot slag and spilled metal in condition of choking dust and blinding steam, are conditions no maker would choose for his machines to operate in ."

4.9 动词尽量靠近主语

如：不用"The decolorazation in solutions of the pigment in dioxane ,which were exposed to 10 h of UV irradiation, was no longer irreversible.",而用"When the pigment was dissolved in dioxane, decolorization was irreversible after 10 h of UV irradiation".

4.10 用重要的事实开头，尽量避免用辅助从句开头

如：用"Power consumption of telephone switching systems was determined from data obtained experimentally", 而不用"From data obtained experimentally, power consumption of telephone switching systems was determined".

4.11 避免使用一些含义模糊的形容词或副词

如 considerable, appreciable, substantial, very,relatively, comparatively, essentially, duly, somewhat, rather,necessarily, inevitably 等。

4.12 尽量应用重要事实开头，避免短语或从句开头

如 MCMV tended to infect GFAP-positive glial cells in the periventricular area during acute infection in the present study.而不用 In the present study, during acute infection, MCMV tended to infect GFAP-positive glial cells in the periventricular area.

4.13 使用正式文体，不用口语体和非规范缩写词

不使用 isn't, aren't, hadn't, hadn't, haven't, don't, can't,wouldn't, a lot of, a bit, too(also), thru(through), exam(examination), lab(laboratory)等。

4.14 英文题名开头第一词不得用 The, And, An 和 A.

5. 英文摘要实例

5.1 新技术、新方法类论文

Identification of vocal cords vibration functions and modes

Abstract: This paper studied the estimate on of harmonic to noise ratio(HNR) in transmitted sound signals (论文研究的具体对象) by wavelet transform (所采用的具体方法). When normal and laryngeal pathological subjects phonate sustained vowels in breathy ,

falsetto , leakage and pressed modes in normal loudness , these HNRs in transmitted sound signals were estimated and compared with the HNR in human voice . **It is pointed** that for normal subjects in a variety of vowels , the variation of HNR in transmitted sound signals is within 5 dB , and in human voice signals is within 20 dB . For normal subject in a variety of phonation modes , the variation of HNR in transmitted sound signals exceeds 18 dB and in human voice signals is within 12 dB (研究问题得到的具体结果) . **The results indicate that** the NHR in transmitted sound signals could more accurately image vocal cords vibration characteristics and could be an effective measurement for studying vocal cords vibration and clinical laryngeal disease diagnosis (成果所具备的具体结论和作用) .

A method of extracting embedded binary data from JPEG bitstreams using standard JPEG decoder

Abstract: **We proposed a method for** embedding binary data into JPEG bitstreams and extracting embedded data from JPEG bitstreams using the standard JPEG decoder. **In the proposed method,** we can decode the image from the embedded binary data JPEG bitstreams first using the traditional standard JPEG decoder, and then we can extract the embedded binary data perfectly by the post-processing from the decoded JPEG image. For the post-processing, we use only the decoded image data to extract the embedded binary data. Namely, we do not need any kind of particular parameters, which are used for JPEG decoding, such as quantization table value. Thus, we can use the traditional standard JPEG decoder for the pre-processing of extracting binary data. Furthermore, we address the effect of the calculation bit accuracy of the DCT and inverse discrete cosine transform (IDCT) for extracting embedded binary data perfectly as post-processing. **Simulations** using extracting embedded binary data as post-processing are presented to quantify some performance factors of concern. **We confirmed that the proposed method could be of practical use**

Linear Optimal Filter with Minimum Mean Square Error for Synthetic Aperture Radar Images

Abstract: A linear optimal filter **is proposed** based on the minimum mean square error (MMSE) criterion **to solve the problem** that the commonly used Lee and Kuan filters for synthetic aperture radar (SAR) images have bigger filtering errors. **The multiplicative noise model of speckle is expanded into** both the first order and the second order Taylor series at the same time, and then the MMSE criterion is used to deduce a unified model of linear filters. The linear optimal filter is finally obtained by applying the MMSE criterion again to the unified model. The linear optimal filter has the lowest filtering error and the highest filtering accuracy among all linear filters. **The despeckling experiments on rural and urban SAR images show that** the linear optimal filter has higher edge and fine detail preserving capacity than the Kuan filter, and has higher speckle suppression than the Lee filter. **A comparison** with the maximum a posteriori filter **shows that** the linear optimal filter has lower edge and fine detail preserving capacity, but has higher capability of speckle suppression. (西安交通大学学报)

5.2 理论分析类

Analysis of an AC-to-DC voltage source converter using PWM with phase and amplitude control

Abstract: A comprehensive analysis of a pulse-width-modulated AC-to-DC voltage source converter under phase and amplitude control is presented [做了什么]. A general mathematical model of the converter, which is discontinuous, time-variant, and nonlinear, is first established. To obtain closed-form solutions, the following three techniques are used: Fourier analysis, transformation of reference frame, and small-signal linearization. Three models—a steady-state DC model, a low-frequency small-signal AC model, and a high-frequency model—are consequently developed. Three solution sets—the steady-state solution, various dynamic transfer functions, and the high-frequency harmonic components—are obtained from the three models. [过程和方法] The theoretical results are verified experimentally [结果和结论].

Modeling of noise parameters of MESFETs and MODFETs and their frequency and temperature dependence

Abstract: A simple wideband noise model of microwave MESFETs (including modulation-doped FETs, high-electron-mobility transistors, etc.) is described and verified at room and cryogenic temperatures [做了什么]. Closed-form expressions for minimum noise temperature, optimum greater impedance, and noise conductance are given in terms of frequency, the elements of FET equivalent circuits, and the equivalent temperatures of intrinsic gate resistance and drain conductance [过程和方法]. The model allows prediction of the noise parameters for a broad frequency range from a single frequency measurement of noise parameters [应用]

5.3 算法类

FFT-based algorithms for the string matching with mismatches problem

Abstract: The string matching with mismatches problem requires finding the Hamming distance between a pattern P of length m and every length m substring of text T with length n . Fischer and Paterson's FFT-based algorithm solves the problem without error in $O(\sigma \log m)$, where σ is the size of the alphabet Σ [SIAM-AMS Proc. 7 (1973) 113–125]. However, this in the worst case reduces to $O(nm \log m)$. Atallah, Chyzak and Dumas used the idea of randomly mapping the letters of the alphabet to complex roots of unity to estimate the score vector in time $O(n \log m)$ [Algorithmica 29 (2001) 468–486] [为什么和背景]. We show that the algorithm's score variance can be substantially lowered by using a bijective mapping, and specifically to zero in the case of binary and ternary alphabets [方法]. This result is extended via alphabet remappings to deterministically solve the string matching with mismatches problem with a constant factor of 2 improvement over Fischer–Paterson's method. [结论] (Journal of Algorithms)

Two-dimensional block adaptive filtering algorithms with optimum convergence factors

Abstract: In this paper, two new fast gradient algorithms which perform 2-D block adaptive filtering are presented. The 2-D adaptive filter coefficients are updated once for every block of input data and error measurement. The two algorithms employ variable convergence factors which are optimized in the least-squares (LS) sense to track the variations in an image's local statistics. These 2-D optimal algorithms are obtained from the one-dimensional optimal adaptive algorithms, which have been recently reported. In the first algorithm, the 2-D optimum block adaptive algorithm with individual adaptation of parameters (TDOBAI), the convergence factors are obtained, that are individually tailored for each 2-D filter weight and are updated once per block iteration. The second algorithm uses a convergence factor that is the same for all the 2-D coefficients at a particular block iteration, and is determined at each block iteration. This algorithm is called the 2-D optimum block adaptive algorithm (TDOBA). In both algorithms, the convergence factors are easily computed from readily available signals. The excellent performance characteristics of the optimal 1-D algorithms are shown to be retained in the proposed 2-D optimal algorithms. The convergence properties of the TDOBAI and the TDOBA algorithms are investigated and compared with the 2-D block least-mean-square (TDBLMS) algorithm which uses a convergence factor that is constant for each 2-D coefficient at each block iteration, using computer simulations. It is also shown that for the TDOBAI and TDOBA algorithms, the convergence, speed and accuracy of adaptation are greatly improved at the expense of a modest increase in computational complexity, as compared to the TDBLMS algorithm. The effectiveness of the algorithms is demonstrated in 2-D system modeling, restoration (2-D additive noise cancellation), and enhancement of artificially degraded images. Also, it is shown that the TDOBAI algorithm is a more general formulation, from which several other recently proposed 2-D sequential and block algorithms can be obtained as special cases, by trading performance with computational complexity (Circuits and Systems II: Analog and Digital Signal Processing, IEEE Transactions on)

5.3 新设计

KY Converter and Its Derivatives

Abstract: In this paper, a voltage-boosting converter, named KY converter (i.e., 1-plus-D converter), is presented. Unlike the traditional nonisolated boost converter, this converter possesses fast load transient responses, which is similar to the buck converter with synchronous rectification. In addition, it possesses nonpulsating output current, thereby not only decreasing the current stress on the output capacitor but also reducing the output voltage ripple. Besides, 1-plus-2D and 2-plus-D converters, derived from the KY converter, are presented based on the same structure but different pulsewidth-modulation control strategies. Above all, the main difference between the KY converter and its derivatives is that the latter ones possess higher output voltages than the former one under the same duty cycle. A detailed description of the KY converter and its derivatives is presented along with some simulated and experimental results. (Power Electronics, IEEE Transactions on)

A systematic approach to developing single-stage soft switching PWM converters

Abstract: A systematic approach to developing soft switching PWM converters based on the synchronous switch scheme is presented in this paper. With the approach, several families of passive and active soft switching PWM converters, such as buck-boost, Zeta, Cuk, and Sepic, can be generated from the two basic converters, buck and boost. Also, the approach is used to integrate multiple converters to form a single-stage soft switching PWM converter. It has been shown that analysis of the converters can be conveniently performed from the derived general configurations, reducing the complexity significantly. Therefore, employing the technique can not only explore more physical insights into the converters in a family but reveal more relationships among the soft switching converters over conventional approaches. Measured results from a prototype have verified the feasibility of the derived single-stage converters (Power Electronics, IEEE Transactions on)

Wavelength converter placement under different RWA algorithms in wavelength-routed all-optical networks

Abstract: Sparse wavelength conversion and appropriate routing and wavelength assignment (RWA) algorithms are the two key factors in improving the blocking performance in wavelength-routed all-optical networks. It has been shown that the optimal placement of a limited number of wavelength converters in an arbitrary mesh network is an NP-complete problem. There have been various heuristic algorithms proposed in the literature, in which most of them assume that a static routing and random-wavelength assignment RWA algorithm is employed. However, the existing work shows that fixed-alternate routing and dynamic routing RWA algorithms can achieve much better blocking performance. Our study further demonstrates that the wavelength converter placement and RWA algorithms are closely related in the sense that a well-designed wavelength converter placement mechanism for a particular RWA algorithm might not work well with a different RWA algorithm. Therefore, the wavelength converter placement and the RWA have to be considered jointly. The objective of this paper is to investigate the wavelength converter placement problem under the fixed-alternate routing (FAR) algorithm and least-loaded routing (LLR) algorithm. Under the FAR algorithm, we propose a heuristic algorithm called minimum blocking probability first for wavelength converter placement. Under the LLR algorithm, we propose another heuristic algorithm called weighted maximum segment length. The objective of the converter placement algorithms is to minimize the overall blocking probability. Extensive simulation studies have been carried out over three typical mesh networks, including the 14-node NSFNET, 19-node EON, and 38-node CTNET. We observe that the proposed algorithms not only outperform existing wavelength converter placement algorithms by a large margin, but they also can achieve almost the same performance compared with full wavelength conversion under the same RWA algorithm. (Communications, IEEE Transactions on)