

# IEEE FELLOW COMMITTEE

## Recommendation Guide

### “How to Write an Effective Nomination” (September 2017)

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*Advancing Technology  
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# **IEEE FELLOW COMMITTEE RECOMMENDATION GUIDE**

## **HOW TO WRITE AN EFFECTIVE NOMINATION**

**(Approved: 09/2017)**

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## **1. Introduction**

This IEEE Fellow Committee Recommendation Guide specifies recommendations and guidelines for Nominators on how to write an effective Nomination. This Recommendation Guide is consistent with higher precedence governing documents (IEEE Fellow Committee Operations Manual, Forms, and Handbooks) and its goal is to guide prospective IEEE Fellow Grade Nominators on how to make better nominations.

This Recommendation Guide contains best practices and there are no normative requirements. In case of any discrepancy, the IEEE Fellow Committee Operations Manual, Forms, and Handbooks take precedence.

Amendments to IEEE Fellow Committee Recommendation Guides shall require the approval of the Fellow Strategic Programs Subcommittee and the IEEE Fellow Committee Chair.

### **1.1 Changes from the January 2017 Version of the Guide**

In June 2017, the IEEE Board of Directors approved a proposal of the IEEE Fellow Committee to reduce the number of References from five-to-eight to three-to-five. This change has been included in the revised [Fellow Committee Operations Manual](#) approved by the IEEE Board of Directors in June 2017.

This change will not be implemented for the current Fellow Class of 2019, but it will take effect for the Fellow Class of 2020, i.e. for Nominations submitted by 1 March 2019. See also the footnote in §10.

To see other recent changes to the IEEE Fellow Committee policies, please see the Fellow Operation Manual at [www.ieee.org/fellows](http://www.ieee.org/fellows).

#### **1.1.1 Additional changes**

The following additional changes were made:

1. Recommendations on how to cite patents and estimate their impact was added in §4.
2. The material on References and Endorsements in §10 and §11 has been updated considering the recently issued new Recommendation Guide on “Effective References and Endorsements.”

## **2. Writing an Effective IEEE Fellow Nomination**

The Nomination Form is a critical document during the Fellow elevation process, and as such, its content is key to the success of the nomination. It is reviewed and assessed by three separate audiences: the Fellow Grade References, the Society/Technical Council (S/TC) Fellow Evaluating Committee (FEC) members (Evaluators), and the IEEE Fellow Committee members (Judges). Thus, it should not be written solely for experts in the Nominee’s area of work, and any IEEE member who is experienced in any technical subject area of concern to the IEEE should be able to understand the impact of the Nominee’s contributions from the Nomination Form.

### **2.1 Fellow Grade Qualification**

The IEEE Bylaws define the qualifications for elevation to Fellow Grade in terms of unusual distinction in the profession, an outstanding record of accomplishments, advancement or

application of engineering, science, and technology, bringing the realization of significant value to society (see IEEE Bylaw I-104.2 for more details). However, the elevation to Fellow Grade is a competitive process because IEEE Bylaw I-305.6 sets the maximum number of elevations that can occur in a year (0.1% of the IEEE voting membership, as of the end of the previous year). Therefore, it is not possible to define a precise set of criteria that ensures elevation.

### 3. The Nomination Form

The best nomination packets are those that follow the instructions for completing the Nomination Form. Read the instructions carefully and do not deviate in terms of length or other requirements.

A well-documented case for elevation to Fellow Grade includes three fundamental aspects:

1. The *individual technical contribution(s)* to the field made by the Nominee
2. The *impact* made by those contributions, which must have already occurred and be evident
3. The *evidence* supporting the case.

Concise narratives that explicitly address these three aspects are more likely to be effective. Excessive narrative and flowery language can reduce the ability of Evaluators and Judges to identify the significance of the Nominee's contribution.

**Remember: Contribution + Impact + Evidence = Success!**

### 4. Individual Contributions

The Nominator must describe in this section the one (or two) most distinctive contribution(s) made by the Nominee. This should include a brief description of what the Nominee has invented, created, or discovered and the lasting impact of the contribution. Note that impact must have already occurred, and speculation on the Nominee's possible future impact is not helpful to strengthening the Nominee's case.

To help Judges who are not specialists in the immediate field, avoid jargon, define acronyms, and briefly explain the state of the art before the Nominee's contribution. It is also useful to provide an unambiguous identifier for the Nominee, for example, using ORCID (Open Researcher and Contributor ID), Researcher ID, or a link to a Google Scholar account with verified institutional email address, or, if applicable, a link to the Nominee's list of patents and/or patent applications (for example, in the United States Patent and Trademark Office (USPTO), the European Patent Office (Espacenet), or another National Patent Office database). This enables Evaluators and Judges to assess the overall publications and citations of a Nominee. While Evaluators and Judges may find citation metrics informative, they are not the primary consideration in the assessment of a Nominee. In fact, Evaluators and Judges are aware that typical citation counts differ in different fields, and that a survey paper may have many more citations than a research contribution that had a greater impact.

The Nominator should choose a Nomination Category that best fits the Nominee. The best choice for the Nomination Category depends on the nature of the Nominee's contributions. If a Nominator is unsure about which category may fit best, it may be useful to find other members previously elevated in each category. This can be done by accessing the "IEEE Fellows

Directory” on the <http://www.ieee.org/fellows> website. Entering a Nomination Category in the search field will return a list of Fellows elevated under that Nomination Category.

The next subsections describe potential individual contributions for the different categories.

#### 4.1 Application Engineer/Practitioner (AE/P)

- What product development, advancement in systems, application or operation, project management or implementation activity, process design or improvement, manufacturing innovation, codes or standards origination and implementation, etc., in the areas of technology application were the direct result of the Nominee’s individual contributions? If contributions were made as part of a group such as a Standards Committee, what is the critical role the Nominee has played?
- What innovation and/or creativity have been demonstrated? What has been the importance of the implemented technology development, advancement, or application?
- What is the most important tangible and verifiable evidence of the Nominee’s contributions including, if appropriate, relevant significant technical publications (patents, reports, articles) and presentations?
- If the Nominee has relevant issued patents, the Nominator should cite them and clarify:
  - Whether the patent is classified as Design or Utility patent (US patents only). Utility patents typically describe functional use either by structure, method, or a combined set of these type claims. Design patents typically are ornamental, lacking functional components. An explanation of why a Design patent is included as evidence is highly recommended
  - Which patent claims (independent or dependent) were contributed solely by the Nominee, in the case there is more than one inventor associated with a patent.
- A summary statement describing the expected use or sale of patent IP should accompany each patent cited as evidence. General questions the Nominator should address are:
  - Has the patent been sold or licensed to a third party for use? If yes, what revenues is it generating.
  - Is the patent important for the assignee to remain on the cutting edge of the technology area being described? If yes, please explain the competitive edge the patent describes.
  - Has the patent initiated new business for the assignee? If yes, please describe the new business venture in terms of how it is benefitting the assignee and the society at large.
  - Has the inventor published a refereed technical publication in addition to the patent? If yes please specify where the publication has appeared.
  - Has the patent been often cited?
  - Has the patent been deemed essential to products or standards?

Nominators should consider using Endorsements for providing additional evidence and confirmation of impact of the Nominee’s patents and contributions in general, see §11.

*Example:* Mr. Smith invented a procedure to identify and locate hot spots in a transformer winding insulation. Such hot spots often occur before transformer failure. The proposed procedure has been implemented by TransformerX Inc. in their transformer monitoring equipment, and has been employed consequently by several leading utilities worldwide. It is

estimated that this procedure has saved utilities over \$500M by identifying transformers requiring maintenance before they failed. Possible evidence: patents, articles, conference presentations, technical reports, standards, company financial statements, media reports.

#### **4.2 Educator (E)**

- What impact has the Nominee’s contribution had on education in the field of interest of the IEEE?
- What unique and innovative curricula or courses has the Nominee personally developed that have influenced teaching outside the Nominee’s home institution? What innovative and unique contributions has the Nominee made to engineering education as an administrator?
- Has the Nominee written a pioneering text in his/her areas of professional specialization?

Nominators should consider using Endorsements for providing additional evidence and confirmation of impact of the Nominee’s impact on engineering education, see §11.

*Example:* Prof. Washington has developed a comprehensive undergraduate curriculum on Digital Signal Processing applications. It includes a set of courses based on his textbook “Fundamentals of Digital Signal Processing” accompanied by a series of laboratory exercises, Matlab routines, and demonstrations. His courses have been a crucial factor in doubling enrollments to the electrical engineering program at his university during the last decade. His book and curriculum have been adopted by several universities in the Nominee’s country and overseas. Possible evidence: books, articles, handbooks, conference presentations, testimonials, university’s and ranking agencies’ data, and education awards.

#### **4.3 Research Engineer/Scientist (RE/S)**

- What inventions, discoveries or advances have been made by the Nominee in the state-of-the-art of the science and/or technology? How do they demonstrate innovation and creativity? What is the importance of the research results and impact of the contributions in advancing the state of the industry or technology? Have they found applications in the industry or implemented in products or systems? Have they been commercialized or used by other organizations?
- What patents, reports, refereed journal papers, research monographs, commercial software packages and other tangible and verifiable evidence have resulted from the Nominee’s R&D accomplishments?

The considerations regarding patents given in §4.1 also apply here. Nominators should consider using Endorsements for providing additional evidence and confirmation of impact of the Nominee’s patents and contributions in general, see §11.

*Example:* Dr. Jones was the first person to develop an algorithm for real-time state estimation for power transmission systems. Her 1990 paper on the topic has been cited over 200 times in the past 25 years and is recognized as one of the seminal articles in this area. Her algorithm has been integrated into several commercial energy management system software packages, including EnSaver and MyEnergy. Possible evidence: published journal papers, patents, technical reports, and a level of national or international adoption of license-protected software.

#### 4.4 Technical Leader (TL)

- What outstanding engineering system implementation, application or scientific accomplishments have resulted from a team or company-wide effort led by the Nominee?
- What technical innovations, business and financial benefits and other advantages have been achieved?
- What technological and other challenges and problems, e.g., market acceptability, implementation difficulties, financial risks have been faced and resolved?
- What were the crucial technical contributions and technological innovations provided by the Nominee?

The considerations regarding patents given in §4.1 also apply here. Nominators should consider using Endorsements for providing additional evidence and confirmation of impact of the Nominee’s patents and contributions in general, see §11.

*Example:* Mr. Chan served as Chief Technology Officer for PowerNow Inc. from 2002-2009. During his time with the company, Mr. Chan led the efforts to enable power distribution automation in over 500 substations in Southeast USA using the technology he had co-invented, developed, and patented with his PowerNow team. It has been confirmed that these upgrades significantly decreased the number and duration of the loss of power for customers in Georgia during Hurricane Katrina. Since 2009, Mr. Chan has served as a consultant to several utilities to modernize their distribution systems. He currently serves as the chair of the PES substations committee and spearheaded the development of the standard C57-12.92-2010. Presented evidence includes: patents, standards, reports, articles (including those on the web), key commercial indicators.

### 5. Evidence of Technical Accomplishment/Part 1

The Nominator should list the three most important items of tangible and verifiable evidence of the technical accomplishments pertaining to the key contribution(s) specified in the section “Individual Contributions” of the Nomination Form. There should be only three items in this Part 1, *not three categories*. Further, these should constitute *specific evidence* of the contributions made by the Nominee. The Nominator’s choice of these three items serves to focus the reader’s attention to the three most important pieces of evidence supporting the Nominee’s individual technical contributions.

An item of evidence may be (but is not limited to) a journal or conference article, a book, patent, report, standard, policy, product, demonstration, or installation. The three items should refer directly to the Nominee’s distinctive contributions. It is acceptable, and often preferable, for the three items to focus on a *single* contribution area rather than be three unrelated elements. This should be the one area in which the Nominee is best known and recognized.

Sound evidence should provide an overview of how the contribution was initially introduced to the field, further technological developments, and adoption by the field at large. If articles are used as evidence, it may be helpful to include citation indices as well, preferably from a source such as Scopus or Web of Science. If possible, include links to products, tools, or online software which are based on or reference the Nominee’s work. Online software download counts may indicate the breadth of usage.

Provide clear information on the *personal* contributions of the Nominee, particularly when joint work with co-authors, collaborative teams, standards committees, supervised post-graduates, etc., is involved. This may take the form of a sentence or two following each item, describing the Nominee’s personal contribution into the identified accomplishments, and how it supports the narrative in the “Individual Contributions” section. This is particularly important because not all IEEE communities use the same convention regarding the order of authors’ names.

A frequently made mistake is to list items that are too recent (papers, patents, etc.) as it is often hard to demonstrate that the contributions have had a lasting societal impact (which typically would require a relatively extended period – sometimes a decade or even more).

Furthermore, tutorial/survey papers can be sometimes helpful to document the Nominee’s maturity - especially if the paper is invited - but cannot serve alone as confirmation of impact of technical contributions, even if highly cited. It is better to list such papers in Part 2.

### **5.1 The case of contributions made on proprietary or classified technologies**

Some Nominees have spent their career in the labs of defense contractors working on classified projects, or for companies which have preferred keeping their technologies as trade secrets and thus have forbidden publishing or patenting them. It is certainly true that for those Fellow Nominees whose careers have not enabled many of their contributions to be published in the open literature or made available publicly via some other means, it can be a difficult task not only to find sufficient Fellows to write References, but also to find sufficient evidence to document their impact to the field. In these cases, Endorsements can be very helpful as they allow providing additional evidence of technical impact, see §11 for more details.

Unfortunately, there are some cases when evidence of contributions and their impact cannot be provided or is insufficient. In these cases, it will be extremely difficult to make a case for elevating the Nominee, since the Fellow recognition depends critically on evidence of contribution and impact. This should not be viewed as a shortcoming of the Fellow process; this should actually be considered as a consequence of the Nominee’s career choices. Other awards or forms of recognition would be more appropriate in these situations.

## **6. Evidence of Technical Accomplishment/Part 2**

In this section, the Nominator must not list more than ten additional items, which may be subdivided into *one or two distinct areas of contributions* that correspond to the contribution areas indicated previously. Include one or two sentences on how these additional items provide evidence of impact.

These additional items should further strengthen the identified main technical accomplishments of the Nominee. Alternatively, they could present results of different categories of technical achievements linked to the main contribution. For publications, it is important to show a sustained impact of them in a *specific* area – not just that the Nominee is a prolific author. One effective approach is to choose evidence that documents a timeline of the evolution of the Nominee’s contribution to the field.

## **7. Additional examples of evidence**

*Example (Research Engineer/Scientist category):* Prof. Liu has developed a new high-frequency asymptotic ray method based on the Uniform Theory of Diffraction (UTD). Practical tools and

techniques based on his method have been widely and successfully employed in design and verification of antennas for air-space applications, see for example the SuperAnt product launched by AirWaves Inc. Evidence of Technical Accomplishment/Part 1 presents three seminal journal publications by Prof. Liu and his co-authors outlining the importance of the presented results and clearly identifying the personal contribution of the Nominee in obtaining them.

Evidence of Technical Accomplishment/Part 2 goes further and provides eight additional publications detailing the scope and strengthening the importance of the contribution made by Prof. Liu.

*Example (Technical Leader category):* While doing her Ph.D. study and postdoctoral research in 1982-1988, Dr. Fisher developed a revolutionary electronic measurement approach and relevant system for application in areas of cellular neuroscience, genomics, and pharmaceutical drug discovery. This pioneering development led Dr. Fisher to found in 1990 Australia-based Fixon Instruments to develop a commercial version of the system. Since then, Fixon has risen to international prominence as a leading developer/supplier of hi-tech systems for research institutes, universities, and biotechnology and pharmaceutical companies worldwide with a capitalization more than \$400Million. During this period, Dr. Fisher led the development of highly commercially successful electronic measurement systems for various applications paving Fixon’s success, see for example products such as FixonCore and FixonPlus which use Dr. Fisher’s revolutionary approach.

Evidence of Technical Accomplishment/Part 1 presents evidence of Dr. Fisher’s technical leadership in terms of the technical innovations she brought to market as well as the impact of such innovations in terms of revenues and market adoption

Evidence of Technical Accomplishment/Part 2 concentrates on two additional distinct areas of Dr. Fisher’s contributions. The first presents three fundamental publications authored by Dr. Fisher that have provided the theoretical and engineering foundation leading to the development of her revolutionary electronic measurement systems and its successful commercialization. The second focuses on the lasting impact of the Nominee’s contribution to society.

## **8. IEEE/Non-IEEE Professional Activities Section**

Demonstrate that the Nominee has been active in IEEE and the profession. Activities may include institute, society, region, section, chapter, committee leadership or membership roles, distinguished lecturer engagements, participation in the IEEE editorial boards, IEEE Standards development, IEEE conference organization, etc. Roles such as conference chairs, TPC chairs, and steering committee membership should be emphasized relative to program committee memberships.

Significant awards and recognitions achieved should also be listed in this section, e.g. elected fellowships, national, international, or technical community recognitions awards and prizes as well as best paper awards.

## **9. Guidelines for the proposed citation**

The citation must begin with “for” and not include any indication of a time period. The citation should be specific, but not too wordy. It should be concise, but broad enough to encompass the

Nominee’s contributions. Please note that the IEEE Fellow Committee may alter the citation if and where necessary.

Examples:

- For contributions to real-time state estimation for nonlinear systems (good)
- For contributions to the development of iterative recursive algorithms used for real-time state estimation in EMS systems (too wordy)

## **10. References**

The Nominator must secure at least five, but no more than eight<sup>1</sup>, References from IEEE Fellows who are able to assess the Nominee’s contributions and their impact. These References are chosen by the Nominator to advocate for the Nominee. The References are to provide information about the value and impact of the Nominee’s contributions, thus the References should be experts in the specific field of the Nominee’s contributions.

The Nominator should communicate in advance with each potential Reference to ascertain their level of support. If a potential Reference is not comfortable to offer a strong positive recommendation, he/she should let the Nominator know. In such a case, the Nominator may choose to approach another potential Reference because a mediocre level of qualification in a Reference Form is not viewed favorably by the Judges.

A good practice for the Nominator to follow is to choose References that are not affiliated with the Nominee but know and understand the Nominee’s work. These References strengthen the Nomination as they provide an independent opinion and verification.

References for Nominees in Region 9 IEEE may be submitted by Senior Members or Fellows. For Nominees in all other Regions, all References must be Fellows.

The Nominator should make References aware of the existence of the IEEE Fellow Committee Recommendation Guide on “Effective References and Endorsements” – see §13.

## **11. Endorsements**

Anyone can submit Endorsements, regardless of IEEE membership or grade. The Endorsements are optional, and a maximum of three may be submitted. An Endorsement strengthens the Nomination only when it supplements the Nomination Form with specific evidence about the Nominee’s achievements and their impact on the profession or society and does not merely reiterate items on the nomination. Endorsements allow the presentation of additional evidence of technical impact for contributions that may have been proprietary at the time they were developed or not available for citation in the open literature.

Endorsements can be very helpful, particularly to those Nominees who have been nominated in the AE/P and TL categories – which include not only members from industry but also a substantial number of academics. They can also be very useful to support RE/S category Nominations when the Nominee performed proprietary or classified work for which there is little availability of public evidence. In these cases, endorsements are most effective when from a company officer, program director, committee chair for a technical community or standards

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<sup>1</sup> As mentioned in §1.1, the IEEE Board of Directors approved a proposal of the IEEE Fellow Committee to reduce the number of References from five-to-eight to three-to-five. This change will not be implemented for the current Fellow Class of 2019, but it will take effect for the Fellow Class of 2020.

body, or a colleague, and, more generally, anyone who can attest and verify the Nominator's claims on impact and individual role of the Nominee.

The Nominator should make Endorsers aware of the existence of the IEEE Fellow Committee Recommendation Guide on "Effective References and Endorsements" – see §13.

## **12. Things to avoid**

### **12.1 Nomination**

- Do not introduce more than two areas of impact.
- Do not provide items of evidence that do not directly support the areas of impact. For example, a paper that has many citations may not be relevant if it does not support the identified area of impact.
- Do not neglect clearly focusing on the main contribution(s) of the Nominee – prolific authorship does not indicate impact.
- Do not forget that all provided evidence items must support the impact area(s). Pieces of evidence that cannot be correlated with one of the impact areas are superfluous.
- Do not submit a Nomination too early. Carefully consider a right time to make the Nomination with respect to the Nominee's career progression and achieved accomplishments. Allow time for the Nominee's impact to be recognized and adopted as well as for the technical accomplishments to be implemented and utilized.
- Do not use the Education category unless the Nominee has been truly focused on improving technical and engineering education and achieved tangible stellar results in the field. Being a good teacher or academic administrator does not constitute sufficient grounds for the IEEE Fellow elevation.
- Do not use the Technical Leader category unless the Nominee contributed with creativity and technical innovation to resolving the challenges of the project, and both his/her leadership and technical role were crucial to the success of the project. A Technical Leader is not solely a manager, even if a successful one. Thus, organizational positions alone cannot be used as sole evidence of accomplishments.

### **12.2 References**

- Do not choose the most famous References in the field if they do not know the Nominee's work and are not able to address their accomplishments personally.
- Do not choose References from only one region of the world.
- Do not choose too many References from a single affiliation or all from the same company.
- Do not choose only References who have collaborated with the Nominee.

### **12.3 Endorsements**

- Do not abuse Endorsements by using them as pseudo-References.
- Do not forget that Endorsements have a specific role: to strengthen the Nominee's contributions in those instances for which verifiable evidence is not available (as in the

case of proprietary or classified work), or to provide additional information directly supporting the technical accomplishments or their impact as well as professional contributions that may be missed in the Nomination.

- Do not have all Endorsement Forms from a single organization or institution.

### **13. Further Reading**

For further details on the normative requirements for the IEEE Fellow Nomination and Evaluations process as well as the eligibility requirements of all the participants in the IEEE Fellow process, please see the IEEE Fellow Committee governing documents and Recommendation Guides posted at <http://www.ieee.org/fellows>.

Also, please note that this Recommendation Guide does not replace the [Help Guide](#) for using the Fellow nomination web application.