

IEEE Fellow – nomination processes

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Fellowship in IEEE

- **IEEE Fellow** is a distinction reserved for select IEEE members with extraordinary accomplishments in any of the IEEE fields of interest
 - The total number selected in any one year does not exceed **one-tenth of one percent** of the total voting Institute membership
 - Currently 9436 are Fellows, out of over 400,000 members
- the IEEE Grade of Fellow is conferred by the Board of Directors upon a person with an extraordinary record of accomplishments in any of the IEEE fields of interest

http://www.ieee.org/membership_services/membership/fellows/index.html



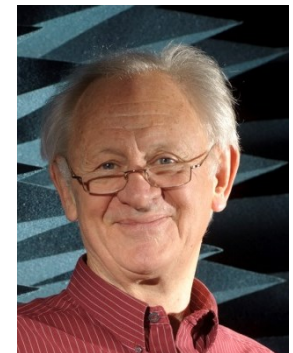
Current IEEE Fellows in South Africa

Fellows:

- Prof. David B. Davidson, Stellenbosch Univ. (F' 12)
- Prof Xiaohua Xia, U of Pretoria (F'10)

Life Fellows:

- Prof. Duncan Baker (F'98)
- Prof. Johannes Malherbe (F'94)
- Prof. Jacobus D. Van Wyk (F'90)



<http://services27.ieee.org/fellowsdirectory/keywordsearch.html?keyword=R8>
http://www.ieee.org/membership_services/membership/fellows/fellowsDirectory.html



History of IEEE Fellow grade

- The grade of Fellow first appeared in the AIEE constitution of 1912
 - the AIEE revised its membership structure and established the grade of Fellow for those engineers who had demonstrated outstanding proficiency and had achieved distinction in their profession. Potential Fellows had to be at least thirty-two years of age, with a minimum of ten years' experience.
- the IRE established its Fellow grade in 1914, the requirements were clearly modelled on those of the AIEE
- 1938: the AIEE modified its constitution to provide that "Applications to the grade of Fellow shall result only from a proposal of five members or Fellows."
- 1939: the IRE modified its procedure to make admission or transfer to the Fellow grade possible only by direct invitation of the Board of Directors
- 1942: the IRE had begun to issue citations to new Fellows, briefly describing their accomplishments.
- 1952: the AIEE followed suit
- 1951: the AIEE prohibited applications for Fellow grade altogether, and adopted a policy of direct invitation similar to that of the IRE
- 1963: AIEE and IRE merged to become IEEE
 - all AIEE and IRE Fellows automatically became Fellows of the IEEE

http://www.ieee.org/membership_services/membership/fellows/index.html



Membership grading within IEEE

- Honorary Member (H or HIEEE)
 - conferred by the IEEE Board of Directors on those individuals, not members of IEEE, who have rendered meritorious service to humanity in IEEE's designated fields of interest
- **Fellow (F or FIEEE)**
 - recognizes unusual distinction in the profession and shall be conferred by the Board of Directors upon a person with an outstanding record of accomplishments in any of the IEEE fields of interest
- Senior Member (SM or SMIEEE)
 - shall require experience reflecting professional maturity (in professional practice for at least 10 years and shall have shown significant performance over a period of at least 5 of those years)
- Member (M or MIEEE)
 - satisfied IEEE-specified educational requirements and/or who have demonstrated professional competence in IEEE-designated fields of interest
- Associate Member (AM or AMIEEE)
 - designed for technical and non-technical applicants who do not meet the qualifications for Member grade, but who would benefit through membership and participation in IEEE, and for those who are progressing, through education and work experience, towards the qualifications for Member grade
- Graduate Student Member (GSM or GSMIEEE)
 - must qualify for Member grade and carry at least 50% of a normal full-time academic program as a registered graduate student in a regular course of study in IEEE-designated fields
- Student Member (StM or StMIEEE)
 - carry at least 50% of a normal full-time academic program as a registered undergraduate or graduate student in a regular course of study in IEEE-designated fields; and not yet qualify for Member grade



IEEE Fellow: Min requirements

At the time the nomination is submitted, an IEEE Fellow nominee must:

- **have accomplishments** that have contributed importantly to the advancement or application of engineering, science and technology, bringing the realization of significant value to society;
- **hold IEEE Senior Member or IEEE Life Senior Member** grade;
- have been a **member in good standing** in any grade for a period of **five years** or more preceding 1 January of the year of elevation.
- Note: IEEE Society affiliation membership does not apply.
- Non-eligibility: The nominee cannot be a member of the IEEE Fellow Committee, an IEEE Society/Technical Council Fellow Evaluating Committee Chair, a member of IEEE Society/Technical Council Fellow Evaluating Committees reviewing the nomination, members of the IEEE Board of Directors, or members who are prohibited from publishing in IEEE publications.
- *Total number of Fellow recommendations in any one-year must not exceed **one-tenth of one percent of the voting membership** on record as of 31 December of the year preceding*

http://www.ieee.org/membership_services/membership/fellows/steps.html



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The Fellow evaluation process

- Submission deadline March 1st
 - All forms (nomination, references, and any endorsements) must be received no later than 1st of March
- Duration of evaluation: 10 months
- Two evaluations:
 1. The Fellow Committee of the IEEE Society/Technical Council that is identified on the nomination form
 - an impartial and even-handed view of the nominee's merit, by persons who are familiar with his or her work
 2. IEEE Fellow Committee
 - has 51 members plus a chair
 - Committee members are IEEE Fellows and selected to represent the 10 IEEE Regions,
- *Slate of nominees is submitted by the IEEE Fellow Committee to the IEEE Board of Directors during the 3rd quarter, and the Board acts upon those recommendations at its year-end meeting (normally scheduled in late-November / mid-December)*
- Announcement
 - *The newly elevated IEEE Fellows are announced shortly after the November IEEE Board of Directors meeting*



Roles / terminology

- **Nominee**
 - A candidate for Fellowship
- **Nominator**
 - Initiates the process of nomination
 - No self-nominations!
- **Reference**
 - IEEE Fellow whom knows the nominee professionally well, capable of assessing the nominee's contributions, and is willing to write detailed references
 - Min 5, max 8 references are required
 - Not a nominator or nominee
- **Endorser**
 - Person (incl. non-IEEE person) who supports the application
 - neither a reference nor nominator

http://www.ieee.org/membership_services/membership/fellows/steps.html



Nominator

- Any person, including non-IEEE members, is eligible to serve as a nominator
- Exceptions: members of the IEEE Board of Directors, members of the IEEE Fellow Committee, IEEE Society/Technical Council Fellow Evaluating Committee Chairs, members of IEEE Society/Technical Council Fellow Evaluating Committee reviewing the nomination, or IEEE Staff. Self-nomination is not permitted, too

The nominator is responsible for:

1. Preparing the IEEE Fellow Grade Nomination Form
2. Soliciting at least five, but no more than eight, references capable of assessing the nominee's contributions
 - A reference must be an IEEE Fellow in good standing. Exceptions above apply. In addition, a nominator may not serve as a reference for a nomination he/she is submitting.
 - There is the *option* of soliciting no more than three endorsements capable of supporting the nomination. Any person, including non-IEEE members, may submit an endorsement. The following individuals are ineligible to serve as endorsements: See Exceptions above. In addition, a nominator may not serve as an endorser for a nomination he/she is submitting.
3. Identifying an IEEE Society/Technical Council whose evaluating committee will assess the nominee's technical qualifications and contributions.



References

- A nomination must be supported by **at least 5**, but **no more than 8** references
- The selection of references is very important
 - References must be qualified to judge the nominee's work.
 - They must have personal knowledge of the nominee's technical accomplishments and have the ability to address the accomplishments in some detail. Broad generalities may serve to weaken your nominee's nomination.
- A nominator should select some references from a) outside the nominee's own organization, grant, or team, and b) references from other countries. Otherwise, the impartiality of the references and the perception of the nominee's distinction may be questioned
 - However, if the nominee's contributions consist primarily of product advancements known only within his own organization, it is acceptable for many of the references to come from that source, so that the appropriate level of detail may be cited. For instance, the knowledge of an internal source might be especially important in the case of an individual's particular contribution in a group effort.
 - Endorsements can also be used to address this problem. Endorsers do not have to be IEEE Fellows.
- Note: References will **not** be shared with the IEEE Society/Technical Council Fellow Evaluating Committee reviewing the nomination.



Endorsements

- A **maximum of 3** endorsements will be accepted.
- An endorsement of a nominee is optional.
- However, the submission of such material will contribute to the evaluation process and should not be overlooked. An endorsement will strengthen a nomination if it contains information on specific contributions that, in the opinion of the endorser, qualify the nominee for the IEEE Fellow grade
- An IEEE Section, Chapter, Committee, or Board to which the nominee has contributed time and talents, may endorse the nomination through its executive body
- A non-IEEE organization or individual may also provide an endorsement
- Note: Endorsements will be shared with the IEEE Society/Technical Council Fellow Evaluating Committee reviewing the nomination



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Completing forms ...

- Essential information
- Educational and professional information
- Contributions/accomplishments
- Nomination category (out of four)
- Evidence of technical accomplishments
- Professional activities
- Proposed citation
- References
- Endorsements
- IEEE Society/Technical Council that best reflects the Nominee's field of technical Interest



Components of evaluation forms

A. ESSENTIAL INFORMATION

– Nominator

- After a nominator logs in the system, their contact information will automatically be populated on the nomination form.

– Nominee

- A nominator will need to enter the nominee's IEEE member number. Once the member number is entered, the system will automatically check for eligibility.

B. EDUCATIONAL AND PROFESSIONAL INFORMATION

– Education

- Provide complete name and location of educational institutions and year that degrees were earned by the nominee.

– Professional History

- Provide a list of employers and job positions held by the nominee.



Components of evaluation forms

C. CONTRIBUTIONS/ACCOMPLISHMENTS

– Individual Contributions

- Since the IEEE Fellow Committee must compare nominees in varied disciplines and situations, objective information on your nominee's excellence is required
- Contributions are not always theoretical in nature or new inventions
 - for instance, engineering efforts that bring a design or theory to fruition through economic, governmental, or other applications can also be important contributions to society



Components of evaluation forms (Individual Contributions)

- Nominators must choose a category of each Nominee from the list below:
 - Application Engineer/Practitioner
 - Educator
 - Research Engineer/Scientist
 - Technical Leader
- It is important for the nominator to select a category that best defines the nominee's significant contributions, and the IEEE Fellow Committee will review the submission with an emphasis on the defined category. The IEEE Fellow Committee recognizes that contributions may fall under one of the following disciplines within the engineering profession
- NB The IEEE Fellow Committee recognizes that it may be more difficult to document the contributions of the practitioner engineer and technical leader because of proprietary constraints on publication. Part of the nominator's job is to request the nominee's organization to provide the information necessary to document the contributions of the nominee



C. Individual Contributions:

Application Engineer/Practitioner

- What product development, advancement in systems, application or operation, project management or construction activity, process development, manufacturing innovation, codes or standards development, or other application of technology was the direct result of the nominee's personal effort?
- Describe the innovation, creativity, and importance of the development, advancement or application of technology.
- List the most important tangible and verifiable evidence of the nominee's contributions and, if pertinent, relevant significant technical publications, e.g. patents, reports, articles.
- Where a team effort was involved, identify and document the specific technical contributions of the nominee.
- Describe and verify the lasting impact of the nominee's contribution on society



C. Individual Contributions: Educator

- What lasting impact has the nominee had on education in a field of interest of the IEEE?
- What unique and innovative curricula or courses has the nominee personally developed? –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 field?
- What impact have these innovations had?
- What is the range of acceptance of this work, local, regional or worldwide?
- Describe and verify the lasting impact of these efforts on engineering education.



C. Individual Contributions: Research Engineer/Scientist

- What outstanding inventions, discoveries or advances in the state of the art made by the nominee indicate innovation, creativity, and importance of the nominee's research?
- List patents, papers published in refereed journals and other tangible and verifiable evidence of the nominee's accomplishments.
- For each item include a brief description of the role of that item in the cited contributions
- Where a team effort was involved, identify and document the specific technical contributions of the nominee.
- Describe and verify the lasting impact of the nominee's contributions to society



C. Individual Contributions:

Technical Leader

- What outstanding engineering application or scientific accomplishments resulted from a managerial, team, or company-wide effort that was led by this nominee?
- Explain the technical innovation, difficulties and risk involved, achieving economic acceptability, and other advantages.
- The nominee's organizational position, while important, cannot be used as the sole evidence of achievements or technical contribution.
- Describe and verify the specific technical contributions that the nominee made which made the achievement possible?
- Describe and verify the lasting impact of the nominee's contribution to society



Components of evaluation forms

D. EVIDENCE OF TECHNICAL ACCOMPLISHMENT

- Tangible evidence is defined as documentation, which a reference or evaluation committee member may review to assess the nominee's technical contributions or engineering achievements
- The achievements may be described in internal organization reports that could be made available for evaluation
- If the technical achievements have not resulted in any products, papers or reports, the achievement must be described and validated by the references and/or the IEEE Society/Technical Council evaluation
- Describe the originality, novelty, complexity, usage, distribution and other characteristics of each of the nominee's technical contributions or engineering achievements and their realization of value to society
- Please list all documentation in English

Examples:

- Technical publication (books, papers, standards,...)
- Patents
- ...



D: Examples of evidence: Technical publication

- Books (authored; edited)
- Refereed papers in archival journals
- Papers in technical conference proceedings
- Technical reports (published; or internal, if available)
- Published standards (specify nominee's role)
 - IEEE Fellow grade is awarded for outstanding original and creative work. Individuals nominated for long and dedicated service in standards activities are frequently rejected because their nominator does not identify the nominee's original and creative contributions
- Other publications
- Technical Presentations (printed talks, television or video scripts, course outlines)

NB! Include all authors names on each publication



D: Example of evidence: Listing a paper in a journal

Author 1, Author 2, Author 3, Author 4, "A theory for multi-resolution signal decomposition: the wavelet representation," IEEE Transaction on xxxxx, vol. xx, p. xxx-xxx, July xxxx.

A good description (*italic* is used here to highlight keywords/phrases identifying the author's contributions and importance of the work):

- Author 1 is one of the *pioneers for the development* of wavelet technologies and in particular to their application to image processing. *This publication first introduced* the multi-resolution theory that *makes the bridge* between the first wavelet bases that were discovered in mathematics and the sub-band filtering algorithms used in signal processing. *This publication also introduced* the fast wavelet transform which *has become the basis* for almost *all* wavelet applications. Wavelets and the fast wavelet transforms are *used in a considerable number of signal and image processing applications and products*, among which the image compression standard *JPEG-2000*. The use of techniques described in this publication has *directly led to* the JPEG-2000 standard which is *universally used today* in applications *much broader* than signal processing. This publication has been *cited more than 1000 times* in referred journal articles. Author 1 *personally developed* the theory behind the fast wavelet transform and also developed the multiresolution theory highlighted in the publication. *His* contributions were *enabling* to the content of the publication



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Components of evaluation forms

E. PROFESSIONAL ACTIVITIES

- IEEE Activities
 - List separately IEEE awards and major activities (offices, committee/board memberships etc.) in descending chronological order.
- Non IEEE Activities
 - List separately awards and memberships/activities in descending chronological order by date. If possible, briefly define the scope of the awards listed
 - Society memberships: provide membership grade and note major volunteer service participation
 - Describe technical contributions to government, international and Educational committee work, trade associations and those services of a professional or public nature having a technical content
 - Include college honor societies
- Please do not use acronyms.



Components of evaluation forms:

IEEE Fellow Grade Nomination Categories

- **Application Engineer/Practitioner**
 - product development, advancement in systems, application or operation, project management or construction activity, process development, manufacturing innovation, codes or standards development, or other application of technology as the direct result of the nominee's personal effort
- **Educator**
 - impact has the nominee had on education in the field of interest of the IEEE, unique and innovative curricula or courses has the nominee personally developed, innovative and unique contributions has the nominee made to engineering education as an administrator, a pioneering text in his/her field, impact, acceptance (local, regional, worldwide)
- **Research Engineer/Scientist**
 - inventions, discoveries or advances in the state of the art made by the nominee indicate innovation, creativity, and importance of the nominee's research, patents, papers published in refereed journals and other tangible and verifiable evidence of the nominee's accomplishments, specific technical contributions of the nominee in team effort, lasting impact of the nominee's contributions to society
- **Technical Leader**
 - outstanding engineering application or scientific accomplishments resulted from a managerial, team, or company-wide effort that was lead by this nominee, technical innovation, difficulties and risk involved, achieving economic acceptability, and other advantages, specific technical contributions that the nominee made which made the achievement possible, lasting impact of the nominee's contribution to society
 - NB nominee's organizational position, while important, cannot be used as the sole evidence of achievements or technical contribution

http://www.ieee.org/membership_services/membership/fellows/fellow_program_changes.html



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Components of evaluation forms

F. PROPOSED CITATION

- The citation should be no more than 20 words.
- The citation should be complete, correct, and succinct.
- The citation may begin with the following words:
 - for contributions to (in)...
 - for developments in...
 - for leadership of (in)...
 - for discovery of...
- Avoid superfluous phrases. Adding an adjective to the above words, such as “outstanding”, is superfluous since the member’s work must be outstanding to fulfil the requirements for Fellow grade
- Use care when incorporating words like “discovery” and “invention”. Evidence of a discovery or invention must be included in the information provided
- Citations should be free of reference to gender (“his” and “her”)
- Only in exceptional cases should the citation include the name of a particular country where the nominee’s work is especially recognized
- Avoid references to specific companies or organizations
- Examples of citations may be found on the IEEE Fellow Web Site at www.ieee.org/fellows



Components of evaluation forms

- References
- Endorsements
 - Very important and discussed earlier
- IEEE Society/Technical Council that best reflects the Nominee's field of technical Interest



Scoring: 0-100% in each of four categories

1. Individual Contributions/Evidence of Technical Accomplishment
 - weighted score = 40 points
 2. IEEE Society/Technical Council Evaluation
 - weighted score = 25 points
 3. References/Endorsements
 - combined weighted score = 15 points
 4. Professional Activities (IEEE and Non IEEE)
 - weighted score = 10 points
- Additional Factor
 - weighted score is 0.1 point per year since receiving first degree
 - Total max 100 points



Some Statistics – Overall picture

Evaluated in 2014 for elevation on 1 January 2015

- Total Voting Membership: 346,505
- Number of Fellows 6,973
- Total Nominations Received 874
- Total Nominees Elevated 300
- % success 34.3%



Some Statistics –Regions compared

Evaluated in 2014 for elevation on 1 January 2015

	Voting Membership	Nominations Received	Nominees Elevated	% of Total Voting Membership	% of Total Nominations Received	% of Total Nominees Elevated	% Success
Regions 1-6 (U.S.)	179,874	429	163	51.9%	49.1%	54.3%	38.0%
Region 7 (Canada)	15,493	45	19	4.5%	5.1%	6.3%	42.2%
Region 8 (Europe, Mid East, Africa)	65,569	179	53	18.9%	20.5%	17.7%	29.6%
Region 9 (Latin America)	11,709	9	1	3.4%	1.0%	0.3%	11.1%
Region 10 (Asia and Pacific)	73,860	212	64	21.3%	24.3%	21.3%	30.2%
Total	346,505	874	300	100.0%	100.0%	100.0%	34.3%

- Few nominations received (179) compared to R1-7
- Yet, low success rate of 29.6%
- Need to do our best in preparing nominations



Some Statistics – Societies compared

Evaluated in 2014 for elevation on 1 January 2015

Society/Council	Voting Membership	Nominations Received	Nominees Elevated	% of Total Voting Membership	% of Total Nominations Received	% of Total Nominees Elevated	% Success
AES	4,645	20	11	1.3%	2.3%	3.7%	55.0%
AP	8,268	32	10	2.4%	3.7%	3.3%	31.3%
ASC	0	1	1	0.0%	0.1%	0.3%	100.0%
BIO	0	0	0	0.0%	0.0%	0.0%	0.0%
BT	1,686	1	1	0.5%	0.1%	0.3%	100.0%
CAS	9,678	40	11	2.8%	4.6%	3.7%	27.5%
COMM	46,249	101	39	13.3%	11.6%	13.0%	38.6%
CPMT	2,505	9	3	0.7%	1.0%	1.0%	33.3%
CIS	6,472	26	6	1.9%	3.0%	2.0%	23.1%
COMP	47,317	120	43	13.7%	13.7%	14.3%	35.8%
CE	3,266	5	1	0.9%	0.6%	0.3%	20.0%
CS	9,287	35	8	2.7%	4.0%	2.7%	22.9%
CEDA	0	11	5	0.0%	1.3%	1.7%	45.5%
DEI	2,202	4	1	0.6%	0.5%	0.3%	25.0%
Educ	3,492	12	3	1.0%	1.4%	1.0%	25.0%
EMC	3,902	6	3	1.1%	0.7%	1.0%	50.0%
ED	9,857	47	13	2.8%	5.4%	4.3%	27.7%

- Larger societies → success rate ~ 35%
- Smaller societies → more “random” (0-100%)



Some Statistics – Nomination category

Evaluated in 2014 for elevation on 1 January 2015

Application Engineer / Practitioner	Received	Elevated	Percent
Industry	44	16	36%
Education	8	0	0%
Government	2	0	0%
Other	2	0	0%
Educator	Received	Elevated	Percent
Industry	0	0	0%
Education	45	8	18%
Government	1	0	0%
Other	0	0	0%
...
Total	874	300	34%

➤ Best apply in the category most appropriate to the field of the nominee



Useful references

- IEEE FELLOW COMMITTEE OPERATIONS MANUAL, IEEE, Nov 2013
 - Online at <https://www.ieee.org/2014fellowmanual>
- FELLOW NOMINATION HELP GUIDE, 11 pages.
 - Online at fellows.ieee.org/static/help/IEEE_Fellows_Nomination.pdf
- IEEE CONSTITUTION and BYLAWS 2015
 - Online at https://www.ieee.org/documents/ieee_constitution_and_bylaws.pdf
- <http://www.ieee.org/fellows>
- Contact at fellows@ieee.org

