Report from the IEEE TAB Ad Hoc Committee on Women and Under-represented Groups (WUG)

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Why is Diversity important for the IEEE?

> Diverse organizations are more creative, perform better, and have higher satisfaction of their members

> IEEE should be a role model for the profession, which is currently struggling to attract/retain diverse members (retention under 50%)

> The IEEE is losing women members
>   - % of women (self-report): All member grades (12.1%); Student members: (30.3%), Graduate Student Members (8.8%), Members (8.7%), Senior members (7.8%); Fellows: (4.4%)
>   - Women are 12% of EE ugrads, 16% of EE profs, 13% of EE workforce
>   - Likely the case with URMs as well, but that data isn't collected

> The IEEE is not providing the same benefits to its women and URM members as to other members (recognition and representation)

> The IEEE can make things better for the next generation of women and URM technologists (today 12% EE ugrads are women)

Accomplishments

› Revised charter to focus on increasing value of and participation in IEEE to women and URMs

  – Lack of recognition, leadership opportunities, and overall inclusivity decreases IEEE value and participation.

› Collected society best practices on women/URMs

  – Will use these to create best practices document for all societies

› Collected statistics on women/URM participation and recognition in societies and IEEE-wide

  – Most statistics are not available; not kept or not openly shared

› Created implicit bias briefing for awards committees (with Dave Messerschmidt); Adopted by Awards Board

  – Could be broadened to encompass all IEEE activities

› Recommendations formulated

Recommendations

▸ Form TAB standing committee with sufficient resources and power to implement recommendations and track impact (top priority)

▸ Require women/URM data collection and metrics reporting on all society and IEEE activities; set targets and track progress

▸ Repository for society best practices; society reviews should ask about activities related to diversity and inclusion, use to update repository

▸ Training for IEEE/society/committee leadership and staff addressing diversity, inclusion, and best practices, incl. implicit bias training

▸ Create implicit bias briefing to raise awareness in IEEE and beyond

▸ Make the "face" of IEEE and its marketing more inclusive

▸ Create IEEE-wide initiatives for URMs

▸ Support creation of a climate survey for all IEEE members

2016 IEEE Awards Booklet
YOUR DIGITAL VERSION IS HERE

Beyond November

2016 ➤ **2018**

- Establish standing committee, phase out ad-hoc

- Recommend what data must be gathered annually

- Collect and summarize best practices used by societies to support diversity/inclusion

- Create a draft implicit bias briefing for possible posting on an IEEE website

- Standing committee creates metrics and climate survey

- Recommendations approved and action plan in place

- Diversity metrics and accountability for them in use

- Implicit-bias-free messaging

- URM IEEE-wide initiatives in place

- Coordination with WIE; WIE leadership on standing comm.

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Backup Slides

IEEE TAB Ad Hoc Committee on WUGs: Revised Charter

❯ Develop strategies to increase engagement of Women and URMs in IEEE Societies/Councils

❯ Develop strategies to increase representation of Women and URMs all across TAB –Societies/Councils Committees and Boards, TAB Committees and Boards

❯ Insure inclusive recognition of achievements

❯ Identify IEEE processes that are barriers to representation and inclusion, and suggest improvements

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Need to be bold

› Is this a top priority for the IEEE?

› Lack of recognition, representation and inclusion of WUGs is systematic throughout the IEEE

› "Moving the needle" will require a strong commitment on the part of the IEEE

- Leadership from the top regarding the need for improvement and associated accountability
- Involve all IEEE groups and individuals with decision power
- Bold and high profile initiatives with commensurate budget
- Concrete ways to measure progress

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Issues Identified: Leaky Pipeline in Membership

> IEEE nearly doubled # of women members 2013-2015, BUT:

- Percentage of women members drops significantly at each higher grade of members

- Similar to "leaky pipeline" seen in academia or industry

- Percentages below that of universities and industry:

  - Women: 12% of EE undergrads, 20% of EE grad students, 16% of EE profs, 13% of EE workforce

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IEEE Membership statistics for 2015:
Total IEEE members (all grades): 310,310, women: 37,562 **(12.1%)**
IEEE Student members: 44,223, women: 13,381 **(30.3%)**
IEEE Graduate Student Members: 30,255, women: 6,144 **(8.8%)**
IEEE Members: 166,035, women 14,374 **(8.7%)**
IEEE Senior members: 29,950, women 2351 **(7.8%)**
IEEE Fellows: 7,244, women: 317 **(4.4%)**
% of women nominations/elevations for 2016 Fellow Class: **7%/8%**

No Data on URMs

for Humanity

Issues Identified: Lack of Recognition and Representation

- Awards statistics (IEEE-wide awards and within societies) abysmally low (low single-digit % in <u>nominations</u> and winners)

- Lack of women representation in publications (as EiCs, within committees and editorial boards, as well as in papers published and citations)

- Low representation of women in conferences (general chairs, TPC chairs, and technical program committees)

- Low number of women as Distinguished Lecturers

- Process issues regarding leadership and committee selection, peer review, etc.
  - Processes are often not transparent, not inclusive, and are subject to implicit bias and even abuse.

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Award Statistics

- Women have won a total of 19 TFAs and 9 Medals over all time (out of 30 TFAs and 9 Medals given annually)[*]
  - 21 out of 29 TFAs and 8 out of 16 medals have never had a female recipient
  - Some TFAs have multiple female recipients.

- In 2017 there were no female medal recipients (0%) and 2 female TFA recipients (6.6%)
  - 2014: 1 female medal recipient (11%) and no female TFA recipients (0%)
  - 2015: 2 female medal recipients (including the Medal of Honor) (22%) and 1 female TFA recipient (3.3%)
  - 2016: 2 female TFA recipients (6.6%) and no female medal recipients (0%).

- Nominations:
  - from 2011-2015, 4%-6% of the TFA nominations were female, and 1%-7% of the medal nominations were female.
  - In 2015, two-thirds of all TFAs and half of all medals did not have a single female nominee.
  - In 2011-2014, only 1-4 medals (out of 16) had a female nominee in that timeframe, and only 5-8 TFAs had a female nominee (out of 29).

*TFAs for education not included

Issues Identified: Barriers

- Implicit bias likely affects selection of IEEE and society leadership, committee membership, journal and conference leadership, honors, and awards.

  - Can play a role in publications that lack double-blind reviews

- IEEE processes can be barriers to inclusion of women and URMs

  - Particularly processes that favor closed-door nominations and appointments vs. open ones

- Work-life balance issues can make it more difficult for women to participate

  - IEEE could support mechanisms to make events more welcoming to women (e.g. day care info, travel grants for childcare providers as some universities have)

Issues Identified: URMs

- URM data is not currently collected
  - Cannot determine current representation or track improvements.
  - No critical mass of URMs in any given society

- Need to demonstrate value of IEEE to URMs
  - For undergrads, should complement SWE, NSBE, & SHPE.
  - For grad students and professionals, IEEE represents excellence and their professional home.
  - For academics, can provide a mentoring network and recognition

- Can create IEEE-wide initiatives for URMs
  - Conferences for URMs focused on achieving technical excellence, as well as training on career planning, leadership and other relevant topics
  - Special distinguished lecturer program, both high-profile regional lectures and to visit HBCs.
  - Outreach to HBCs, junior colleges, and state schools
  - Connect URMs to company internships/jobs/mentors

IEEE communications unfriendly to WUGs (reinforces lack of inclusion)

> "Face" of IEEE presentations and publications not inclusive
  - Both words and pictures

> Could be used to showcase women/URM achievements
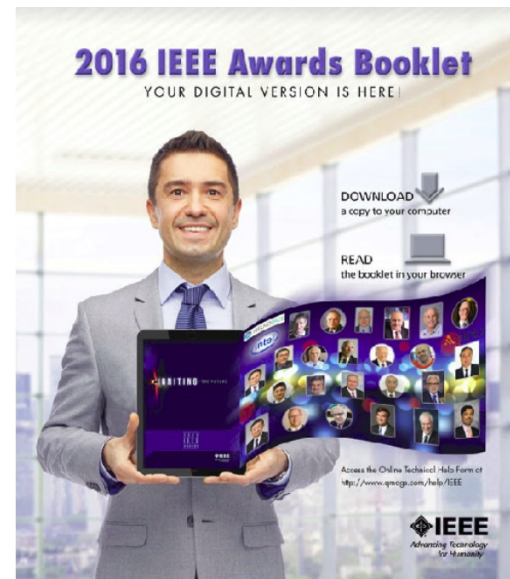
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Need for leadership training and raising awareness of bias/inclusion

- Improving diversity, inclusion, and recognition requires awareness & commitment from leadership

- The Royal Society and White House Office of Science and Technology have implicit bias briefings
  - Awards Board recently approved one for awards committees

- All IEEE activities should be welcoming and supportive environments for women and URMs

THE ROYAL SOCIETY

Unconscious bias

Equally, all proposals or nominations must be assessed on equal terms, regardless of the sex, age and/or ethnicity of the applicant. Proposals must therefore be assessed and graded on their merits, in accordance with the criteria and the aims and objectives set for each award scheme or call for funding.

Implicit bias:
A briefing for IEEE awards committees
August 2016

Purpose
Your participation in the IEEE Awards program, by encouraging and recognizing outstanding contributions to our profession, is valuable to the careers of engineers. The IEEE Awards Board is working to insure that such contributions are equitably recognized without regard to gender, ethnicity, region, or technical specialization. We recognize that we have a ways to go toward achieving this goal, and one obstacle is implicit bias. This briefing summarizes a body of social science research on implicit bias, hopes to convince you that implicit bias can be a real impediment to fair decision making in the awards process, and suggests some concrete steps that can be taken in committee deliberative processes to mitigate its undesirable effects.

Why IROS 2016 culturally entertaining?
- Traditional costume
- Flower tea service
- Classic vocal music
- Sand art performance
- Korean traditional dancing
- Sexy K-pop
- Gayageum music

◆ Girl group 'LOVE CUBIC'

Climate Survey

› Has never been done for all IEEE members

  – Would be extremely valuable to inform IEEE on the value it offers members, along with areas of dissatisfaction

  – Goal of the survey is to inform how best to recruit and retain members.

  – Will also provide information on the IEEE experience of women, URMs, and members from different regions/groups

› Will be run by Institutional Research

› Need time to formulate questions and summarize data collected to maximize value of the survey

› TAB should champion survey (will own the data)

  – Standing committee can help formulate questions

Doesn't WIE address many of these issues?

- Mission: Acts globally "to facilitate the recruitment and retention of women in technical disciplines"
  - Also inspires girls globally to pursue an engineering career
  - Charter includes advocating for women in IEEE awards/leadership

- Under Member & Geographic Activities Board
  - Little intersection with the TAB, hence cannot address lack of diversity and inclusion associated with TAB Committee activities
  - Many women whose IEEE experience is primarily under the auspices of the TAB have no interaction with or knowledge of WIE

- Activities and Statistics
  - WIE Leadership Conference: Held annually in San Jose. 1164 attendees; 34% IEEE members, 12% academics/students
  - 684 Affinity Groups (provide local networking primarily for industry folks/students). WIE also does summits and outreach
  - Approx. 18,000 members in 2016 (may auto opt-in)

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Statistics around women in EE and in technology

- Students: Percentage of women undergrads
  - 12% EE (same since 1980s), 17% CS, 19% engineering
  - Percentage of EE MS and doctoral students around 20%

- Academia:
  - 16% of EE faculty are women
  - Less than 10% at Stanford, many other schools

- Industry:
  - 13% of the engineering workforce are women
  - 56% of women leave careers in tech. Leaky pipeline moving up ladder

- Patents: Less than 3% of patent holders are women

- Startups: 8% of Bay Area startups had women founders last year

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