IEEE Kharagpur Section
Annual General Meeting Report for the Year 2019
IEEE Kharagpur Section
Annual Report for the Year 2019

Presented at the Annual General Meeting on Feb. 26, 2020 (Wednesday)

PART A - SECTION SUMMARY

A1. Executive Committee

- Section Executive Committee Member List:
  
  Dr. Shailendra Kumar Varshney (Chair, IC representative)
  Dr. Debarati Sen (Vice Chair)
  Dr. Sudip Misra (Secretary)
  Dr. Debdoot Sheet (Treasurer)
  Dr. Sanjay Kumar Chaturvedi (Assistant Secretary, Industry Relations Chair)
  Dr. Dipankar Debnath (SAC Chair)
  Dr. Mrinal Kanti Mandal (SAC Chair)
  Dr. Manjunatha Mahadevappa (SIGHT Chair, Humanitarian Technologies)
  Dr. Sanjeev Srivastva (Technical Activities)
  Dr. Anandaroop Bhattacharya (Membership Development)
  Dr. Amit Datta (Industry Relations Coordinator)
  Dr. N. K Kishore (Historian)
  Dr. Chittaranjan Mandal (Advisor Executive Committee)
  Dr. Debasish Sen (Young Professional Chair)
  Dr. P.K. Dutta (Signal Processing Society Chapter Chair)
  Dr. Sudip Nag (Engineering in Medicine and Biology Society Chair)
  Dr. Alok Kanti Deb (Control Systems Society Chapter Chair)
  Dr. Chetna Singhal (WiE Chair)
  Ms. Asmita Bose (WiE Affinity Group Chair)
  Mr. Samaresh Bera (IIT Kharagpur Student Branch Chair)
  Dr. Chittaranjan Mandal (Immediate Past Chair)

A2. Constituent Bodies

- Section constituent bodies:
  
  - Kharagpur Section (R00155)
  - Control Systems Society Chapter (CH10150)
  - Engineering in Medicine and Biology Society Chapter (CH10723)
  - Signal Processing Society Chapter (CH10742)
  - Women in Engineering Affinity Group (WE00155)
  - Young Professional Affinity Group (YP00155)
  - IIT Kharagpur Student Branch (STB20461)
  - IEEE SPS Student Branch Chapter (SBC20461A)
  - Antenna and Propagation and Microwave Theory and Techniques (AP-MTTS) Student Branch Chapter (SBC20461B)
  - IEEE EMB Student Chapter (SBC20461C)
  - IEEE Computer Society Student Branch Chapter (SBC20461D)

A3. Membership statistics:

  - Fellow: 01
  - Senior Member: 45
  - Life Senior Member: 01
  - Members: 131
  - Associate Member: 02
  - Graduate Student Member: 159
  - Student Member: 50
  - Total: 390
A4. Financial Report:

Statement of Section Accounts for January - December 2019

Fixed Deposit value as on 01/01/2019: INR 215,538.00
  FD1 = INR 72,778.00
  FD2 = INR 36,388.00
  FD3 = INR 106,372.00

Fixed Deposit value as on 31/12/2019: INR 229,034.00
  FD1 = INR 77,381.00
  FD2 = INR 38,268.00
  FD3 = INR 113,385.00

Fixed Deposit Interest Income during 2019: INR 13,496.00

Cash in hand on 01/01/2019: INR 1525.00
Cash in hand on 31/12/2019: INR 158.00
Reduction in cash in hand: INR 1367.00

Statement of Section Savings Account in SBI, Kharagpur

<table>
<thead>
<tr>
<th>Date</th>
<th>Purpose</th>
<th>Debit (Rs.)</th>
<th>Credit (Rs.)</th>
<th>Balance (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/01/2019</td>
<td>Opening Balance</td>
<td></td>
<td></td>
<td>565,903.16</td>
</tr>
<tr>
<td>14/03/2019</td>
<td>UPP Student Branch Support</td>
<td>141,900.00</td>
<td></td>
<td>707,803.16</td>
</tr>
<tr>
<td>03/06/2019</td>
<td>Student branch operational fund</td>
<td>46,717.00</td>
<td></td>
<td>754,520.16</td>
</tr>
<tr>
<td>12/06/2019</td>
<td>Section Support Received</td>
<td>342,011.00</td>
<td></td>
<td>10,965,31.16</td>
</tr>
<tr>
<td>12/06/2019</td>
<td>Support Received for societies (AP-MTTS, TA)</td>
<td>114,430.00</td>
<td></td>
<td>12,109,61.16</td>
</tr>
<tr>
<td>23/08/2019</td>
<td>Closure of student branch account</td>
<td>5794.84</td>
<td></td>
<td>12,167,56.00</td>
</tr>
<tr>
<td>25/11/2019</td>
<td>R10 Small Section Award</td>
<td>70,760.00</td>
<td></td>
<td>12,875,16.00</td>
</tr>
<tr>
<td>2019</td>
<td>Savings account interest income</td>
<td>22,335.00</td>
<td></td>
<td>13,098,51.00</td>
</tr>
</tbody>
</table>

Expenses

<table>
<thead>
<tr>
<th></th>
<th>Debit (Rs.)</th>
<th>Balance (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Section Expenditure during 2019</td>
<td>485785.00</td>
<td>837,562.00</td>
</tr>
<tr>
<td>31/12/2019 Reduction in cash in hand</td>
<td>1367.00</td>
<td>838,929.00</td>
</tr>
<tr>
<td>31/12/2019 Closing Balance as per bank statement</td>
<td></td>
<td>825,433.00</td>
</tr>
</tbody>
</table>

- **Major section Activities**
  - Organized 12 technical talks
  - Administrative meetings (Executive committee and all affiliated OUs)
  - IEEE Kharagpur section has offered technical co-sponsorship to three international conferences, NCC-2020, ICCCNT-2020, ICIIIS-2019

- **Major Student and Affinity Group Activities**
  - IIT Kharagpur Student Branch organized 6 technical workshops on classical and emerging technologies.
  - Celebrated IEEE day on 1st October
  - IEEE Xtreme event (19 Oct. 2019)
  - IEEE Computer Society Student Branch Chapter is formed and got approved from IEEE, 26 Jan. 2020.
Richard E Merwin Scholarship (Spring Cycle, 2019) awarded by the IEEE Computer Society: Devarpita Sinha (Vice-Chair, IEEE SB 2019-20)


A team of three students (Meet Joshi, Vivek Gupta, and Vishal Raj) from IIT Kharagpur got Global Rank 17 (Country Rank 1) in IEEE Xtreme 13.0- A 24 hours programming competition held on Oct 19, 2019. Proctor for the team was Prof. Debdoot Sheet.

A group of IEEE student members from IIT Kharagpur got an opportunity to visit Nokia R&D, Bangalore, through NOKIA-IEEE University Collaboration programme on June 29, 2019.
PART B - ORGANIZATIONAL ACTIVITIES

B1. Membership Development Activities

- Total number of active members in the past 3 years:
  - 2017: 378
  - 2018: 386
  - 2019: 396
  - Current: 390 (See below)

- One Industrial visit (field trip) was organized for membership retention:

  Field trip was conducted on February 2, 2020 to Airforce Station, Salua. Various components such as the transmitter, receiver, and operations room of the RADAR were of the shown. The functioning of the radar installed at the station for tracking of civilian and military aircrafts was demonstrated. The coverage of the radar was also informed by the technical team. Appropriate safety precautions were taken during the visit.

![Field trip group photo](image-url)
B2. Chapter Activities

1. Total number of Chapters in the Section: 7
2. Number of Chapters formed in the current year: 01
   (IEEE Computer Society Student Branch Chapter (SBC20461D))
3. Number of active Chapters: 7
4. Summary of Chapter activities
   CH10742 (Signal Processing SP01): 8 technical talks
   CH10723 (Engineering in Medicine and Biology EMB18): 4 technical talks
   CH10150 (Control CS23): 4 technical talks
   STB20461 (IIT KGP, SB): 5 technical talks + 5 workshops
   STB66361 (HIT, SB): 2 workshops
   SBC20461A (IIT KGP SPS, SB): 7 technical talks
   SBC20461B (AP-MTTS, SB): 8 technical talks + 3 workshops
   SBC20461C (IIT KGP EMBS, SB): 3 technical talks
   WE00155 (WIE Affinity Group): 3 technical talks

B3. Professional and Continuing Education Activities

- Organized 12 technical talks from Section
- Organized 50 technical talks for the various Chapters

Detailed Activity Report

B4. Professional and Continuing Education Activities

Kharagpur Section (Geo Code - R00155)

<table>
<thead>
<tr>
<th>Sl.</th>
<th>Date</th>
<th>Speaker</th>
<th>Topic</th>
<th>Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>IEEE</strong></td>
<td><strong>Non IEEE</strong></td>
</tr>
<tr>
<td>1</td>
<td>03-01-2019</td>
<td>Anjan Bose</td>
<td>Cloud Computing in Power System Operation and Control</td>
<td>13</td>
</tr>
<tr>
<td>2</td>
<td>24-01-2019</td>
<td>Scott Morrison</td>
<td>Mixed-Signal IC Verification - challenges today and into the future</td>
<td>11</td>
</tr>
<tr>
<td>3</td>
<td>04-02-2019</td>
<td>Pushpak Bhattacharya</td>
<td>Cooperative Natural Language Processing and Deep Learning</td>
<td>05</td>
</tr>
<tr>
<td>4</td>
<td>20-02-2019</td>
<td>Mohamed-Chaker Larabi</td>
<td>From binocular vision modelling to efficient 3D coding and quality assessment</td>
<td>05</td>
</tr>
<tr>
<td>5</td>
<td>28-03-2019</td>
<td>Larry Rowland</td>
<td>Silicon Carbide Crystal Growth for a Better Tomorrow</td>
<td>03</td>
</tr>
<tr>
<td>6</td>
<td>14-05-2019</td>
<td>Biswajit Ray</td>
<td>Hack-proof Non-volatile Memory System</td>
<td>03</td>
</tr>
<tr>
<td>7</td>
<td>17-05-2019</td>
<td>Emanuele Viterbo</td>
<td>Efficient Detection of OTFS Modulation</td>
<td>11</td>
</tr>
<tr>
<td>8</td>
<td>08-08-2019</td>
<td>Farrokh Mistree</td>
<td>Frontier Issues for succeeding in a digitized world</td>
<td>05</td>
</tr>
<tr>
<td>9</td>
<td>28-08-2019</td>
<td>Robert Wille</td>
<td>Design Automation for Quantum Computing</td>
<td>12</td>
</tr>
<tr>
<td>10</td>
<td>01-10-2019</td>
<td>Joy Deep Mitra</td>
<td>Energy Assurance with Renewable Generation</td>
<td>10</td>
</tr>
<tr>
<td>11</td>
<td>18-12-2019</td>
<td>Sandeep Kundu</td>
<td>Security and Privacy of Machine Learning Systems</td>
<td>12</td>
</tr>
<tr>
<td>12</td>
<td>18-12-2019</td>
<td>Rajkumar Buyya</td>
<td>New Frontiers in Cloud and Edge/Fog Computing for Big Data &amp; Internet-of-Things Applications</td>
<td>10</td>
</tr>
<tr>
<td>13</td>
<td>08-01-19</td>
<td>Section Executive Committee meeting, Jan. 2019</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>18-02-19</td>
<td>Section Executive Committee meeting, Feb. 2019</td>
<td>05</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>07-03-19</td>
<td>Section Executive Committee and all affiliated OUs joint administrative meeting, March. 2019</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>30-04-2019</td>
<td>Section Executive Committee</td>
<td>05</td>
<td></td>
</tr>
</tbody>
</table>
### Control System Society (Geo Code – CH10150), Chair: Prof. Alok Kanti Deb

<table>
<thead>
<tr>
<th>Sl.</th>
<th>Date</th>
<th>Speaker</th>
<th>Topic</th>
<th>Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>22-03-2019</td>
<td>Prof. Ashwin M. Khambadkone</td>
<td>Microgrids: Planning, Design and Control</td>
<td>22</td>
</tr>
<tr>
<td>2.</td>
<td>28-11-2019</td>
<td>Dr. Onyema S Nduka</td>
<td>Power Quality Issue: A 21st Century Electricity Distribution System Planning and Operational Challenge</td>
<td>12</td>
</tr>
<tr>
<td>3.</td>
<td>16-12-2019</td>
<td>Prof. Enrico Santi</td>
<td>Research in Power Electronics including Modeling of Wide Bandgap Power Devices</td>
<td>19</td>
</tr>
<tr>
<td>4.</td>
<td>17-12-2019</td>
<td>Prof. Sandip Kundu</td>
<td>Security and Privacy of Machine Learning Systems</td>
<td>12</td>
</tr>
</tbody>
</table>

### Signal Processing Society Chapter (Geo Code – CH10742), Chair: Prof. P.K. Dutta

<table>
<thead>
<tr>
<th>Sl.</th>
<th>Date</th>
<th>Speaker</th>
<th>Topic</th>
<th>Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16-01-2019</td>
<td>Dr. Deblina Sarkar</td>
<td>Green Electronics to Gray Matter</td>
<td>27</td>
</tr>
<tr>
<td>2</td>
<td>04-02-2019</td>
<td>Pushpak Bhattacharya</td>
<td>Cooperative Natural Language Processing and Deep Learning</td>
<td>05</td>
</tr>
<tr>
<td>3</td>
<td>05-02-2019</td>
<td>Bhujanga Chakraborty</td>
<td>Optimizations in Electricity Markets with reference to New Zealand Market</td>
<td>04</td>
</tr>
<tr>
<td>4</td>
<td>20-02-2019</td>
<td>Mohamed-Chaker Larabi</td>
<td>From binocular vision modelling to efficient 3D coding and quality assessment</td>
<td>28</td>
</tr>
<tr>
<td>5</td>
<td>28-02-2019</td>
<td>Dr Mithun Das Gupta</td>
<td>AI @ Microsoft</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>13-08-2019</td>
<td>Kishor Sarawadekar</td>
<td>High Efficiency Video Coding (HEVC) Algorithm and its Core Transform Architectures</td>
<td>10</td>
</tr>
<tr>
<td>7</td>
<td>23-10-2019</td>
<td>Prasad Gudem</td>
<td>Evolution of Cellular Wireless Technology</td>
<td>11</td>
</tr>
<tr>
<td>8</td>
<td>28-10-2019</td>
<td>Chandan Karmakar</td>
<td>Wearable Devices in Healthcare</td>
<td>06</td>
</tr>
</tbody>
</table>

### EMBS Chapter (Geo Code – CH10723), Chair: Prof. Sudip Nag

<table>
<thead>
<tr>
<th>Date</th>
<th>Speaker</th>
<th>Title of the Lecture</th>
<th>IEEE Members</th>
<th>Guest</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 05-03-19</td>
<td>Prof. Anastasios Bezerianos</td>
<td>Cognitive Assessment for Human-Machine Interaction</td>
<td>13</td>
<td>18</td>
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<tr>
<td>2. 24-07-19</td>
<td>Prof. Soumyajit Mandal</td>
<td>Flexible, Skin Coupled Microphone Arrays for Point of Care Vascular Access Monitoring</td>
<td>08</td>
<td>10</td>
</tr>
<tr>
<td>3. 18-08-19</td>
<td>Prof. Sudip Sekhar</td>
<td>Silicon Photonics Integrated</td>
<td>06</td>
<td>12</td>
</tr>
</tbody>
</table>
Circuits – Connect, Switch & Compute

4. 20-09-19 Dr. Samit Chakrabarty Smart affordable mobility for the many (Using neurophysiology to influence bio-engineering solutions) 02 10

Women in Engineering Affinity Group (Geo Code – WE00155), Chair: Ms. Somreeta Pramanik

<table>
<thead>
<tr>
<th>Sl.</th>
<th>Date</th>
<th>Speaker</th>
<th>Topic</th>
<th>Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>08-03-2019</td>
<td>Debarati Sen</td>
<td>5G Communication</td>
<td>13 06</td>
</tr>
<tr>
<td>2</td>
<td>08-03-2019</td>
<td>Karabi Biswas</td>
<td>Women hold Half the Sky</td>
<td>13 06</td>
</tr>
<tr>
<td>3</td>
<td>28-03-2019</td>
<td>Excom meeting (WiE affinity Group)</td>
<td>This first group meeting of the new ex-com members of WIE Affinity Group for the year 2019, was regarding future event planning of start-up summit, sponsorship for international leadership summit (ILS) and unfinished tasks from the previous year.</td>
<td>06</td>
</tr>
</tbody>
</table>
| 4  | 11.11.2019 | WiE executive committee meeting | meeting of the executive committee to discuss  
- Conducting two technical talks before the end of the year. It was decided to contact Prof. Majira Sinha and one of the postdocs in Priyanka's lab to invite them to deliver a technical talk.  
- Organise volunteer sign-up drive. In order to increase the number of active volunteers in the working group, it was decided to gather more participants from various departments. Posters and forms for volunteer signup are to be circulated in all women's hostels.  
- "Editor Speaks" event. Keeping in view the suggestion put forward by Prof. Debdoot Sheet, the possibility of conducting a series of discussions headed by faculty members who serve as the editors of various journals and transactions was discussed. Considering the time constraints, it was decided to organise this event in the next year. | |
| 5  | 10-12-2019 | Manjira Saha           | Computational Models for Language Comprehension                      | 07 07      |

IIT Kharagpur Student Branch (Geo Code - STB20461), Chair: Mr. Samaresh K Bera

<table>
<thead>
<tr>
<th>Sl.</th>
<th>Date</th>
<th>Speaker</th>
<th>Topic</th>
<th>Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>06-05-2019</td>
<td>Souvick Chatterjee and Pawankumar Fakatkar</td>
<td>Workshop on MATLAB: Introduction</td>
<td>20 35</td>
</tr>
<tr>
<td>2</td>
<td>07-05-2019</td>
<td>Souvick Chatterjee and Pawankumar Fakatkar</td>
<td>Workshop on MATLAB: Applications in Signal and Image Processing</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>03-06-2019</td>
<td>Samaresh Bera</td>
<td>Technical Report Writing Workshop Using LaTeX</td>
<td>22 65</td>
</tr>
<tr>
<td>4</td>
<td>31-07-2019</td>
<td>Swagato Sanyal</td>
<td>On decision tree complexity of</td>
<td>4 9</td>
</tr>
<tr>
<td>Sl.</td>
<td>Date</td>
<td>Speaker</td>
<td>Topic</td>
<td>IEEE</td>
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<tr>
<td>5</td>
<td>01-09-2019 to 02-09-2019</td>
<td>Boolean functions</td>
<td>Workshop conducted jointly by IEEE SB and IIT Robotix Society</td>
<td>1</td>
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<tr>
<td>6</td>
<td>15-10-2019</td>
<td>Bhaskar Gupta</td>
<td>Research on RF MEMS</td>
<td>10</td>
</tr>
<tr>
<td>7</td>
<td>19-10-2019 to 20-10-2019</td>
<td>IEEE Xtreme Programming Competition</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>30-10-2019</td>
<td>Debidas Kundu</td>
<td>Planar Periodic Impedance Surfaces: Engineering and Applications</td>
<td>45</td>
</tr>
<tr>
<td>9</td>
<td>30-10-2019</td>
<td>Ranbir Singh</td>
<td>IEEE - A Partner in an Engineer's Journey</td>
<td>45</td>
</tr>
<tr>
<td>10</td>
<td>29-11-2019 to 11-12-2019</td>
<td>Winter School of AI and Robotics conducted jointly by IEEE SB and IIT Robotix Society</td>
<td>2</td>
<td>219</td>
</tr>
<tr>
<td>11</td>
<td>27-12-2019</td>
<td>Sandeep Anand</td>
<td>Towards Reliable Power Electronic Converters</td>
<td>23</td>
</tr>
<tr>
<td>12</td>
<td>13-03-2019</td>
<td>1st Quarter Administrative Meeting</td>
<td></td>
<td>09</td>
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<tr>
<td>13</td>
<td>03-09-2019</td>
<td>Meeting to discuss the nomination for Richard E. Merwin Scholarship</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>16-10-2019</td>
<td>Meeting to plan for IEEE Leadership Outreach Program</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>16-10-2019</td>
<td>Administrative Meeting to discuss report preparation for 2019</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>31-10-2019</td>
<td>Administrative Meeting to plan events for 2020</td>
<td>07</td>
<td></td>
</tr>
</tbody>
</table>

**HIT Student Branch (Geo Code - STB66361)**

<table>
<thead>
<tr>
<th>Sl.</th>
<th>Date</th>
<th>Speaker</th>
<th>Topic</th>
<th>IEEE</th>
<th>Non IEEE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>31-08-2019</td>
<td>Workshop on PSPICE</td>
<td></td>
<td>3</td>
<td>90</td>
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<tr>
<td>2</td>
<td>19-10-2019</td>
<td>Workshop on Electronics: Circuitrix</td>
<td></td>
<td>2</td>
<td>120</td>
</tr>
</tbody>
</table>

**HIT Kharagpur EMBS, Student Branch (Geo Code - SBC20461C); Chair: Mr. Souvik Biswas**

<table>
<thead>
<tr>
<th>Sl.</th>
<th>Date</th>
<th>Speaker</th>
<th>Topic</th>
<th>IEEE</th>
<th>Non IEEE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>09-08-2019</td>
<td>Stefan Wilhelm</td>
<td>Quantitative Analysis of Nano-Bio Interactions with Single-Cell Resolution</td>
<td>6</td>
<td>16</td>
</tr>
<tr>
<td>2</td>
<td>27-09-2019</td>
<td>Gorachand Dutta</td>
<td>Biomedical Sensor devices for Point-of-Care Disease Diagnosis</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>22-10-2019</td>
<td>Budhaditya Mukherjee</td>
<td>Dissection of the Fundamental Roles Played by Apicomplexan Aspartyl Proteases in Establishment of Parasitism</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>23-09-2019</td>
<td>Administrative Meeting to discuss the future direction of EMB SBC</td>
<td>04</td>
<td></td>
<td></td>
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<tr>
<td>5</td>
<td>14-10-2019</td>
<td>Administrative Meeting to discuss increasing student participation</td>
<td>03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>25-10-2019</td>
<td>Administrative Meeting to discuss organizing future talks</td>
<td>03</td>
<td></td>
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</tr>
</tbody>
</table>

**IEEE SPS Student Branch Chapter IIT Kharagpur (Geo Code – SBC20461A), Chair: Ms. Akansha**

<table>
<thead>
<tr>
<th>Sl.</th>
<th>Date</th>
<th>Speaker</th>
<th>Topic</th>
<th>IEEE</th>
<th>Non IEEE</th>
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<table>
<thead>
<tr>
<th>Sl.</th>
<th>Date</th>
<th>Speaker</th>
<th>Topic</th>
<th>Attendance</th>
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<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td>IEEE</td>
</tr>
<tr>
<td>1</td>
<td>02.11.2018</td>
<td>Prof. Sarang Pendharker, IIT kgp</td>
<td>Signal Processing Applications in Radio Astronomy</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>06-02-2019</td>
<td>Goutam Chattopadhayay</td>
<td>Medical Imaging Big Data Informatics</td>
<td>25</td>
</tr>
<tr>
<td>4</td>
<td>08-02-2019</td>
<td>Soumak Bhattacharya</td>
<td>Power Spectrum Estimation in Low-Frequency Radio Astronomy</td>
<td>15</td>
</tr>
<tr>
<td>5</td>
<td>19-02-2019</td>
<td>Mrinal Kanti Mondal and Akhilesh Mohan</td>
<td>Learning to Aggregate Knowledge Across Weakly Labelled Datasets using Multitask and Adversarial Agents</td>
<td>18</td>
</tr>
<tr>
<td>7</td>
<td>13-05-2019</td>
<td>Arun K. Bhattacharya</td>
<td>Are We Alone? NASA’s Search to Find Life Beyond Earth (DL)</td>
<td>23</td>
</tr>
<tr>
<td>8</td>
<td>14-05-2019</td>
<td>Arun K. Bhattacharya</td>
<td>Applications of Metamaterials and Metasurface in High Frequencies</td>
<td>18</td>
</tr>
<tr>
<td>9</td>
<td>11-06-2019</td>
<td>Priyanka Mondal</td>
<td>Open discussion on “My personal experience of benefits from joining IEEE AP and MTT societies”</td>
<td>18</td>
</tr>
<tr>
<td>10</td>
<td>13-06-2019</td>
<td>Animesh Biswas</td>
<td>3 days technical workshop on Connecting World through Electromagnetics</td>
<td>17</td>
</tr>
<tr>
<td>11</td>
<td>05-07-2019</td>
<td>Arani Ali Khan</td>
<td>Distributed learning and signal processing algorithms</td>
<td>20</td>
</tr>
<tr>
<td>12</td>
<td>14-10-2019</td>
<td>Tapan K. Sarkar</td>
<td>Workshop on Fabrication and Measurement Techniques of RF &amp; Microwave Active &amp; Passive Components</td>
<td>19</td>
</tr>
<tr>
<td>14</td>
<td>28-02-2019</td>
<td>1st Quarterly Meeting</td>
<td>Workshop on Interactive Learning Pedagogy using TaraNG:19.0</td>
<td>11</td>
</tr>
<tr>
<td>15</td>
<td>28-05-2019</td>
<td>2nd Quarterly Meeting</td>
<td>Administrative Meeting</td>
<td>16</td>
</tr>
</tbody>
</table>

IEEE AP-MTTS Student Branch Chapter IIT Kharagpur (Geo Code - SBC20461B), Chair: Ms. Priyanka Deb Sinha
B5. Student Activities
Total number of Student Branches in the Section: 2
Number of Student Clubs/Societies: 4
Number of Student Branches/Clubs/Societies formed in the current year: 01
Branch level student activities (1 boot camp, 4 technical talks, 6 Workshops)
Student travel award for attending conference

B6. Affinity Group Activities:
WIE Affinity Group organized 3 technical talks and 2 non-technical talk.
YP Affinity group did not organize any event or talk.

B7. Awards & Recognition Activities:
- R10 SAC Leadership Training and Membership Development Fund 2019
- R10 Outstanding Small Section Award
- Membership Growth Reward of USS 300 to SPS chapter
- Richard E. Merwin Student Scholarship (2019):02
  - Devarpita Sinha (Vice-Chair, IEEE SB 2019-20), Spring cycle 2019
  - Sobhan Dhara (SAC membership development, IEEE SB 2019-20), Autumn cycle 2019

B7. Communication Activities:
Regular e-mails were sent to all the section members informing them about seminar notices, conference announcements, India Council and R10 events and membership renewal dates.

B8. Industry Relations
Industry Field Trip was organized for the members and their families and student body members at the Air Force Station, Salua on February 02, 2020 as reported in B1.

B9. Humanitarian Technology Activities: Nothing to report

B10. Community Activities: Nothing to report

C. OTHERS

C1. Special Events
- IEEE Xtreme event (19 Oct. 2019)

C2. Relationship with National and International Societies and Non-Government Organizations (NGO)
- Kshitij 2019 (Techno-management festival of IIT Kharagpur)
- Technology Robotix Society of IIT Kharagpur

C3. Collaboration with other IEEE Sections
- Sri Lanka Section
- Central Region sub-section Sri Lanka

C4. Support extended to Sub-sections & Society Chapters within the Section
All financial transactions, seed grants and special opportunities grants facilitated, audited and managed by the section for following OUs
- Control Systems Society Chapter (CH10150)
- Engineering in Medicine and Biology Society Chapter (CH10723)
- Signal Processing Society Chapter (CH10742)
- Women in Engineering Affinity Group (WE00155)
- Young Professional Affinity Group (YP00155)
- IIT Kharagpur Student Branch (STB20461)
• IEEE SPS Student Branch Chapter (SBC20461A)
• Antenna and Propagation and Microwave Theory and Techniques (AP-MTTS) Student Branch Chapter (SBC20461B)
• IEEE EMB Student Chapter (SBC20461C)

Joint activities for membership development:
• Mentored the formation of IEEE SB at Vinoba Bhave University Hazaribagh, JH.
• Membership development in the vicinity of Kharagpur section in Tatanagar, Ranchi and Hazaribagh

C5. Best Practices of your Section (which you would like to share with other Sections for the benefits of members)
• Regular administrative meeting and joint meeting involving all OUs and drawing of charters in joint consolations
• Regularly high level technical talks are organised whenever some domain expert visits IIT Kharagpur

C6. Problems anticipated and suggestions for solutions, if any
• Spare time with officers for section and chapter activities is decreasing fast. Need to motivate young volunteers capable of dedicated enough time for section level activities.

PART D - GOALS AND PLANS

D1. Continuation of project/activity in progress and their implementation plans
• 11th International Conference on Computing, Communication and Networking Technologies (ICCCNT)

D2. Goals and Future Plans
• To increase membership by reaching to new faculty members of IIT Kharagpur.
• To revive Haldia subsection activity.
• To revive the two underperforming societies viz. CSS and EMBS
• To revive WIE and YP affinity group activity.
• To start Humanitarian Activity of the section
• To start Community activity of the section by initiating a TISS (Teacher in Service Scheme) with IIT Kharagpur campus schools.
• To organize TechSym 2020 with the help of IIT Kharagpur student branch
• To update and maintain Section webpage

D3. Any innovative ideas to make IEEE more creative and value added for sustaining the membership retention and recruitment goals.
• Membership boot camp at regular intervals and to address the benefits to students mainly from the second year of their undergraduate studies

• Organization of joint workshops to raise the money
MINUTES of AGM of IEEE Kharagpur Section for 2018
held at GSST NKN Room on
February 26, 2019

Chair: Prof. Chittaranjan Mandal
Vice Chair: Prof. Shailendra Kumar Varshney
Secretary: Prof. Debrati Sen
Treasurer: Prof. Sudip Misra
Student Branch Counselor/Student Activities Chair: Prof. Debdooot Sheet
Nomination Committee Chair: Prof. Amitabha Bhattacharya

Control System Society Chair: Prof. Alok Kanti Deb
Engineering in Medicine and Biology Society Chair: Prof. M. Manjunatha
Signal Processing Society Chair: Prof. P K Dutta

Haldia sub-section student branch counselor: Prof. Goutam Das

- Prof. Chittaranjan Mandal welcomed all members and delivered his speech
- Prof. Shailendra Kumar Varshney presented minutes of the last AGM. The minutes were confirmed by the voice vote.
- Prof. Chittaranjan Mandal mentioned major organizational activities of the IEEE Kharagpur Section
- Prof. Sudip Misra has presented the audit report of the section
- On behalf of Prof. Alok Kanti Deb, Prof. Pranab Kumar Dutta presented the report for the Control System Society.
- On behalf of Prof. M. Manjunath, Prof. Sudip Nag presented the report for the Engineering in Medicine and Biology Society.
- Ms. Sireesha Tamada presented the report for the Women in Engineering Affinity group.
- Mr. Arup Ray presented the report of IEEE AP/MTT chapter and discussed the planned events in the year 2019.
- Mr. Samaresh Bera on behalf of Mr. Sudipto Ghosh presented the activities of IIT Kharagpur student branch.
- Prof. Goutam Das presented HIT Student Branch activities. Mr. Aditya (new Chair of HIT, SB) presented the activities in detail and also presented an event calendar describing activities round the year.
- Prof. Chittaranjan Mandal requested Prof. Amitabha Bhattacharya to present the new slate. Prof. Amitabha Bhattacharya welcomed the new office bearers.

Chair : Prof. Shailendra Kumar Varshney
Vice Chair : Prof. Debarati Sen
Secretary : Prof. Sudip Misra
Treasurer : Prof. Debdooot Sheet
Assistant Secretary : Prof. Sanjay K Chaturvedi

- Mementoes were presented to outgoing Section chair and various chapters chairs.
- Vote of thanks was presented by Prof. Shailendra K Varshney.
Programme of IEEE AGM 2019 (to be held on 26.02.2020)

- Attendance
- Welcome address by chair, Prof. Shailendra K. Varshney
- Presentation of Minutes of AGM 2018 by Vice Chair, Prof. Debarati Sen
- Presentation of Kharagpur Section Annual Organizational Report, 2019 by Chair, Prof. S.K. Varshney
- Presentation of Kharagpur Section Financial Report, 2019 by Treasurer, Prof. Debdoot Sheet
- Presentation of Signal Processing Society Chapter Annual Report, 2019 by Prof. Pranab Kr. Dutta
- Presentation of Control System Society Chapter Annual Report, 2019 by Prof. Alok Kanti Deb
- Presentation of Engineering in Medicine and Biology Society Chapter Annual Report, 2019 by Prof. Sudip Nag
- Presentation of IIT Kharagpur Student Branch Report, 2019 by Mr. Samaresh Bera/Ms. Devarpita Sinha and welcome to incoming slate
- Presentation of Antenna and Propagation / Microwave Theory and Technique Society Student Branch Annual Report, 2019 by Ms. Priyanka Deb Sinha and welcome to incoming slate
- Presentation of Signal Processing Society Student Branch Annual Report, 2019 by Ms. Akansha and welcome to incoming slate
- Presentation of Women in Engineering Affinity Group Annual Report, 2019 by Ms. Somreeta Pramanik/Ms. Rachna Sathish and welcome to incoming slate
- Presentation of new slate of Kharagpur section office bearers for 2020 by nomination committee chair, Prof. Chittaranjan Mandal/
- Handover of Charges
- Presentation of Mementoes to outgoing office bearers Presentation of Vote of Thanks by Secretary 2019, Prof. Sudip Misra
Annual Activity Report
2019

IEEE Student Branch, Its Allied Student Branch Chapters & Affinity Group (WIE) of
IIT Kharagpur
IEEE Kharagpur Section

Annual General Meeting
February 26, 2020

IEEE Student Branch of IIT Kharagpur
Indian Institute of Technology Kharagpur
Kharagpur, West Bengal - 721 302
India
IEEE Student Branch (STB20461)
IIT Kharagpur
An IEEE UPP Institute
Activity Report for the Year 2019

IEEE Student Branch of IIT Kharagpur seeks to enhance the learning experience of the student community on the IIT Kharagpur campus. The Student Branch focuses on conducting social and technical activities for students, and also encourages the students to take full advantage of the benefits of IEEE membership, including scholarships, competitions, and conference grants. The Student Branch also intends to provide opportunities for students to network with peers in other institutes, academicians, professionals, engineers, and scientists through the on-campus IEEE Student Branch and the Local IEEE Section, thereby encouraging students to be a part of the global IEEE community.

In the year 2010, the IEEE Student Branch of IIT Kharagpur joined IEEE University Partnership Program (UPP), an elite group of 17 top engineering schools/universities worldwide. The partnership allows the Student Branch to avail additional resources and support, including help in networking with local, regional, and international IEEE groups.

IEEE Engineering in Medicine and Biology Society (EMBS) is the world’s largest society of Biomedical Engineers. The EMB Student Chapter was initiated to bring together students working in domain areas relevant to Medical Sciences and Technology at IIT Kharagpur.

The students working in the domain of Signal and Image Processing also came together to form a Student Branch Chapter of the IEEE Signal Processing Society, in 2015.

Antennas and Propagation (AP) & Microwave Theory and Techniques (MTT) has joined together to form a new student branch chapter of IEEE AP-MTT Society, in 2016.

Specific Goals of the Student Branch

- Providing funding for student-directed activities associated with IEEE the Student Branch, IIT Kharagpur.
- Familiarizing students with some cutting edge technologies and hands-on experiences.
- Enhancing Teaching and Enabling Active Learning skills.
- Providing students an opportunity to enhance their professional experiences by planning and organizing social and technical activities on campus and outside.
- Generating awareness about IEEE, its activities and the awards and recognitions it offers to the students of undergraduate and graduate levels.
- Jointly organizing the Technical events on campus.
- Providing a platform for students to collaborate with industry and academia.
- Provide partial funding to the students for IEEE journal and Conference papers.

### Technical Activities - 2019

<table>
<thead>
<tr>
<th>Sl.</th>
<th>Date</th>
<th>Speaker</th>
<th>Topic</th>
<th>Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>06-05-2019</td>
<td>Dr. Souvick Chatterjee and Mr. Pawankumar Fakatkar (Education Technical Evangelist, Mathworks)</td>
<td>Workshop on MATLAB: Introduction</td>
<td>20</td>
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<tr>
<td>2</td>
<td>07-05-2019</td>
<td>Dr. Souvick Chatterjee and Mr. Pawankumar Fakatkar (Education Technical Evangelist, MathWorks)</td>
<td>Workshop on MATLAB: Applications in Signal and Image Processing</td>
<td>20</td>
</tr>
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<tr>
<td>3</td>
<td>03-06-2019</td>
<td>Mr. Samaresh Bera (Research Scholar in CSE Dept. and Chair, IEEE Student Branch, IIT KGP 2019-20)</td>
<td>Technical Report Writing Workshop Using LaTex</td>
<td>22</td>
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<tr>
<td>4</td>
<td>31-07-2019</td>
<td>Dr. Swagato Sanyal (Asst. Prof, CSE, IIT KGP)</td>
<td>On decision tree complexity of Boolean functions</td>
<td>4</td>
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<tr>
<td>5</td>
<td>01-09-2019 to 02-09-2019</td>
<td>Robosoccer Workshop</td>
<td>Workshop conducted jointly by IEEE SB and Technology Robotix Society, IIT Kharagpur</td>
<td>1</td>
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<tr>
<td>6</td>
<td>15-10-2019</td>
<td>Prof. (Dr) Bhaskar Gupta (Electronics and Telecom Dept, Jadavpur Univ.)</td>
<td>Research on RF MEMS</td>
<td>10</td>
</tr>
<tr>
<td>Sl.</td>
<td>Date</td>
<td>Topic</td>
<td>Participants</td>
<td></td>
</tr>
<tr>
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<tr>
<td>8</td>
<td>30-10-2019</td>
<td>Dr. Debidas Kundu (DST Inspire Faculty, IIT Roorkee)</td>
<td>Planar Periodic Impedance Surfaces: Engineering and Applications</td>
<td>45</td>
</tr>
<tr>
<td>9</td>
<td>30-10-2019</td>
<td>Mr. Ranbir Singh Sedhey (Client Service Manager, IEEE.)</td>
<td>IEEE - A Partner in an Engineer's Journey</td>
<td>45</td>
</tr>
<tr>
<td>10</td>
<td>29-11-2019 To 11-12-2019</td>
<td>Robotix Workshop</td>
<td>Workshop conducted jointly by IEEE SB and IIT Robotix Society</td>
<td>433 (1st phase) 219 (2nd phase)</td>
</tr>
<tr>
<td>11</td>
<td>27-12-2019</td>
<td>Dr. Sandeep Anand (Asso. Prof. IIT Kanpur)</td>
<td>Towards Reliable Power Electronic Converters</td>
<td>23</td>
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</table>

**Administrative Meetings - 2019**

<table>
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<tr>
<th>Sl.</th>
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<th>Topic</th>
<th>Participants</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>13-03-2019</td>
<td>Chair of IEEE SB presented an overview of the IEEE IIT KGP SB activities carried out in the previous two years (2017 and 2018). Planned for workshops, hardware hackathons. Planned for invited talks, Modification of SB website</td>
<td>12 (12-IEEE Member)</td>
</tr>
<tr>
<td>2</td>
<td>03-09-2019</td>
<td>Nomination for IEEE Richard E Merwin Student Scholarship</td>
<td>12 (12-IEEE Member)</td>
</tr>
<tr>
<td>3</td>
<td>03-09-2019</td>
<td>Discussions on Membership Development Fund</td>
<td>12 (12-IEEE Member)</td>
</tr>
<tr>
<td>4</td>
<td>10-12-2019</td>
<td>Discussions for the formation of IEEE Computer Society Student Branch Chapter, formation of its Execom and SAC, and organization of IEEE CS Outreach event to be held on 04.01.2020</td>
<td>18 (18-IEEE Member)</td>
</tr>
</tbody>
</table>
Award and Achievements - 2019

1. Richard E Merwin Scholarship (Spring Cycle, 2019) awarded by the IEEE Computer Society: Devarpita Sinha (Vice-Chair, IEEE SB 2019-20)
4. A team of three students (Meet Joshi, Vivek Gupta, and Vishal Raj) from IIT Kharagpur got Global Rank 17 (Country Rank 1) in IEEE Xtreme 13.0- A 24 hours programming competition held on Oct 19, 2019. Proctor for the team was Prof. Debdoot Sheet.
5. A group of IEEE student members from IIT Kharagpur got an opportunity to visit Nokia R&D, Bangalore, through NOKIA-IEEE University Collaboration programme on June 29, 2019.

Funds Received - 2019

2. IEEE Region 10 (Asia-Pacific) Leadership Training & Membership Development Fund (Reimbursement up to $400)
3. Additional $100 for the annual report submission before the deadline (Nov. 2019)
4. Student Branch Operating Fund

Activities Planned - 2020

1. Volunteer development training.
2. Planning and formation of IEEE Computer Society Student Branch Chapter.
3. IEEE Boot Camp to promote IEEE and increase membership among the students of IIT Kharagpur.
4. Sessions on Research Writing and Presentation using LaTeX
5. Short Term Workshops on R, Python, National Instruments, MATLAB & Simulink.
6. Robotix workshop (jointly with Robotix Society, IIT Kharagpur)
7. Coding (C++, Data Structure) workshop (jointly with Code Club, IIT Kharagpur)
8. Paper Presentation and Math olympiad. (jointly with Kshitij, IIT Kharagpur)
9. Workshops on MEMS, Medical Imaging, Computer Vision & Machine Learning, Networking, Analog Design.
11. One day Industry visit and hands-on trainings.
12. Invited talks and Webinars by eminent speakers from Academia and Industry.
Committee Members

Outgoing

Faculty advisors

1. Dr. Mrinal Kanti Mandal, Department of Electronics And Electrical Communication Engineering
2. Dr. Dipankar Debnath, Department of Electrical Engineering

Exe-com members

1. Chair-Mr. Samaresh Bera
2. Vice Chair-Ms. Devarpita Sinha
3. Secretary-Ms. Anwesha barik
4. Treasurer-Mr. Niloy Saha
5. UPP Liasion-Mr. Sudipta Ghosh

SAC members

1. Communication-Mr. Sovanjyoti Giri
2. Membership Development-Mr. Sobhan Kanti Dhara
3. Educational Activity-Ms. Archita Ghosh
4. Web Master-Mr. Prajnamaya Dass
5. Web Master-Mr. Arka mitra

Incoming

Faculty Advisor

1. Dr. Debashis Sen, Electronics and Electrical Communication Engg.

Execom

1. Chair-Ms. Devarpita Sinha
2. Vice Chair-Mr. Niloy Saha
3. Secretary-Ms. Anwesha Barik
4. Treasurer-Mr. Prajnamaya Dass
5. UPP-Liasion-Mr. Samaresh Bera

SAC

1. Communication-Ms. Priyanka Deb Sinha, Mr. Soham Kundu
2. Membership Development-Mr. Sobhan Kanti Dhara, Mr. Sheshadri Shekhar Rauth
3. Educational Activity-Ms. Archita Ghosh,
4. **Web Development** - Mr. Arka Mitra, Mr. Shuvodip Majumdar

5. **Society Activities And Community Development** - Mr. Arup Ray, Mr. Aditya Kameswara Rao Nandula

**Photographs:**

Banner, IEEE Student Branch IIT Kharagpur.
Technical Report Writing Workshop Using LaTex
by Mr. Samaresh Bera, Chair, IEEE Student Branch, IIT Kharagpur 2019-20
Robosoccer Workshop jointly organized by IEEE Student Branch and Technology Robotix Society, IIT Kharagpur
Technical Talk: Research on RF MEMS by Prof. (Dr.) Bhaskar Gupta

IEEE Xtreme 13.0: A 24 hours Programming Competition
Technical Talk: Planar Periodic Impedance Surfaces: Engineering and Applications
by Dr. Debidas Kundu

Non-technical talk: IEEE - A Partner in an Engineer's Journey
by Mr. Ranbir Singh Sedhey
Robotix Workshop conducted jointly by IEEE Student Branch and Technology Robotix Society IIT Kharagpur
### IEEE AP-MTTS SBC Event Reporting 2019

<table>
<thead>
<tr>
<th>Sl. no.</th>
<th>Name of the Event</th>
<th>Type of the Event</th>
<th>Date</th>
<th>Number of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Invited talk by Prof. Sarang Pendharker, IIT kgp</td>
<td>Technical</td>
<td>02 Nov 2018</td>
<td>30 (10-Guest, 20-IEEE Member)</td>
</tr>
<tr>
<td>2.</td>
<td>Distinguished Lecture by Dr. Sudhakar Rao, IEEE Life Fellow Northrop Grumman</td>
<td>Technical</td>
<td>13 Dec 2018</td>
<td>34 (12-Guest, 22-IEEE Member)</td>
</tr>
<tr>
<td></td>
<td>Fellow Technical Fellow, Northrop Grumman Aerospace Systems</td>
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<tr>
<td>3.</td>
<td>Distinguished lecture on “Are we alone? Nasa’s search to find life beyond earth” by Dr. Goutam Chattopadhyay, NASA’s Jet Propulsion Laboratory, California Institute of Technology.</td>
<td>Technical</td>
<td>06 Feb 2019</td>
<td>60 (35-Guest, 25-IEEE Member)</td>
</tr>
<tr>
<td>4.</td>
<td>Invited talk on “Applications of metamaterials and metasurface in high frequencies” by Dr. Somak Bhattacharyya, Indian Institute of Technology (Banaras Hindu University), Varanasi.</td>
<td>Technical</td>
<td>08 Feb 2019</td>
<td>21 (6-Guest, 15-IEEE Member)</td>
</tr>
<tr>
<td>5.</td>
<td>Open discussion on &quot;My personal experience of benefits from joining IEEE AP-MTT societies&quot; by Dr. Mrinal Kanti Mandal of Indian Institute of Technology Kharagpur and Dr. Akhilesh Mohan of Indian Institute of Technology Kharagpur</td>
<td>Social</td>
<td>19 Feb 2019</td>
<td>23 (5-Guest, 18-IEEE Member)</td>
</tr>
<tr>
<td>6.</td>
<td>Technical Workshop on “Connecting world through electromagnetics”</td>
<td>Technical</td>
<td>26 Apr 2019 09:00 AM</td>
<td>39 (22-Guest, 17-IEEE Member)</td>
</tr>
<tr>
<td>7.</td>
<td>Distinguished lecture on “Phased Array Antennas: Space Applications and Challenges” by Dr. Arun K. Bhattacharyya, RF Center of Excellence of</td>
<td>Technical</td>
<td>13 May 2019</td>
<td>30 (7-Guest, 23-IEEE Member)</td>
</tr>
<tr>
<td>No.</td>
<td>Event Description</td>
<td>Type</td>
<td>Date</td>
<td>Details</td>
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<tr>
<td>8</td>
<td>Interactive Q &amp; A session with Dr. Arun k. Bhattacharyya, Rf center of excellence of Lockheed Martin Corporation</td>
<td>Technical</td>
<td>14 May 2019</td>
<td>24 (6-Guest, 18-IEEE Member)</td>
</tr>
<tr>
<td>10</td>
<td>Invited talk on “SIW and dielectric rod based circuits and antennas” by Dr. Animesh Biswas</td>
<td>Technical</td>
<td>13 Jun 2019</td>
<td>42 (23-Guest, 19-IEEE Member)</td>
</tr>
<tr>
<td>11</td>
<td>Invited talk on “Recent progresses in solid state power amplifiers (SSPAS) for rf-microwave applications” by Dr. Arani Ali Khan, IIT JODHPUR</td>
<td>Technical</td>
<td>05 Jul 2019</td>
<td>53 (34-Guest, 19-IEEE Member)</td>
</tr>
<tr>
<td>12</td>
<td>IEEE day celebration</td>
<td>Technical</td>
<td>1 Oct 2019</td>
<td>18 (4-Guest, 14-IEEE Member)</td>
</tr>
<tr>
<td>13</td>
<td>Invited talk on “The physics, mathematics and realization of radio wave propagation in a cellular wireless environment” by Prof T.K. Sarkar, Syracuse University, USA</td>
<td>Technical</td>
<td>14 Oct 2019</td>
<td>33 (8-Guest, 25-IEEE Member)</td>
</tr>
<tr>
<td>14</td>
<td>Workshop on &quot;Interactive learning pedagogy using Tarang:19.0&quot; by Swapnil Gaul, Numeregion Technology</td>
<td>Technical</td>
<td>19 - 20 Oct 2019</td>
<td>24 (7-Guest, 17-IEEE Member)</td>
</tr>
</tbody>
</table>
physics exploration and engineering applications, by Prof. Fan Yang, Tshinghua University, China

<table>
<thead>
<tr>
<th>Faculty advisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Sarang Pendharker, Department of Electronics and Electrical Communication Engineering</td>
</tr>
</tbody>
</table>

**Exe-com members**

- Ms. Priyanka Deb Sinha (Chair)
- Mr. Shuvodip Majumdar (Vice-Chair)
- Mr. Anirban Sengupta (Secretary)
- Mr. Manikant Sinha (Treasurer)
- Ms. Tazeen Shaikh (Webmaster)

**SAC members**

- Mr. Arup Ray
- Ms. Manisha Kahar
- Mr. Rijubrata Pal
- Mr. Mahesh Singh
- Mr. Pallab Kr Gogoi
- Ms. Ruchita Sonak
- Ms. Prajakta Sathe
- Mr. Punit Kumar
- Mr. Deborsi Basu
Few photographs of the events:

Fig1: Distinguished lecture on “Are we alone? Nasa’s search to find life beyond earth” by Dr. Goutam Chattopadhyay, NASA’s Jet Propulsion Laboratory, California Institute of Technology.
Fig 2: Technical Workshop on “Connecting world through electromagnetics”
Fig 3: Open discussion on "My personal experience of benefits from joining IEEE AP-MTT societies" by Dr Mrinal Kanti Mandal of Indian Institute of Technology Kharagpur and Dr. Akhilesh Mohan of Indian Institute of Technology Kharagpur
Fig 4: IEEE day celebration
Outgoing Executive Committee Member List 2019

Chair - Akanksha
Co-chair - Mohamed Ismail Yasar Arafath
Secretary - Jessy Khonglah
Treasurer - Himadri Sekhar Bhunia
Web and Online Activities Chair - Saptarshi Pal Chaudhuri
Web and Online Activities Co-Chair - Anushree Basu

Incoming Executive Committee Member List 2020

Chair - Mohamed Ismail Yasar Arafath
Co-chair - Himadri Sekhar Bhunia
Secretary - Rahul Mahadik
Treasurer – Kasturi Barik

Faculty Advisor
Dr. Anirban Mukherjee
Associate Professor, EE

Technical Activities:

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>Speaker &amp; Affiliation</th>
<th>No. of participants</th>
<th>IEEE</th>
<th>Non-IEEE</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 26, 2019</td>
<td>Signal Processing Applications in Radio Astronomy</td>
<td>Prof. Jayaram N Chengalur, Address: National Centre for Radio Astrophysics, TIFR, Pune, India</td>
<td>9</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>July 3, 2019</td>
<td>An Energy Based Model for Word Segmentation and Morphological Tagging in Sanskrit</td>
<td>Prof. Pawan Goyal, IIT Kharagpur</td>
<td>5</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>July 10, 2019</td>
<td>Medical Imaging Big Data Informatics</td>
<td>Prof. Nirmalya Ghosh, IIT Kharagpur</td>
<td>7</td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>July 17, 2019</td>
<td>Power Spectrum Estimation in Low-Frequency Radio Astronomy</td>
<td>Prof. Somnath Bharadwaj, Centre for theoretical Studies, IIT Kharagpur</td>
<td>7</td>
<td></td>
<td>14</td>
</tr>
</tbody>
</table>
October 24, 2019  Learning to Aggregate Knowledge Across Weakly Labelled Datasets using Multitask and Adversarial Agents  Prof. Debdoot Sheet, IIT Kharagpur  13  14

October 31, 2019  Deep Learning Frameworks for the Localization of Face and Facial Landmarks  Dr. Anirban Dasgupta, CEO & CTO of Humosys Tech Pvt. Ltd.  10  21

December 20, 2019  IEEE Distinguished Lecture on “Distributed Learning and Signal Processing Algorithms”  Prof. Anna Scaglione, Arizona State University  17  24

Photographs from the events:

Fig. 1: Left technical talk by Prof. Somnath Bharadwaj. Right: Technical talk by Prof. Nirmalya Ghosh

Administrative Meeting:

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>No. of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>February 21, 2019</td>
<td>Planning events for the session</td>
<td>6</td>
</tr>
</tbody>
</table>

Social Meeting-Student/technical discussion

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>Speaker</th>
<th>No. of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 15, 2019</td>
<td>Graph Signal Processing</td>
<td>Jessy</td>
<td>7</td>
</tr>
</tbody>
</table>
Future Activities:

- Organising student activity pertaining to their area of research with discussions and possible joint-dissemination of the work.
- Organising one lecture by an SPS Distinguished Lecturer.
- Regular lecture series on various topics related to signal, image, and information processing.
- Organising workshop on signal and image analysis tools

IEEE EMB Student Branch Chapter

A. Events, details of events, no of attendees (IEEE, non IEEE), etc. You can see the format of last year's AGM report in net.

Technical talks:

1. Quantitative Analysis of Nano-Bio Interactions with Single-Cell Resolution by Dr. Stefan Wilhelm of University of Oklahoma
   a. Agenda: In this presentation, we will explore interactions of engineered nanoparticles within the tumor microenvironment. Using quantitative analytical techniques, such as flow cytometry and inductively-coupled plasma mass spectrometry, we determined the delivery of systemically administered nanoparticles to individual tumor cell populations. Our results revealed that non-cancerous cells, such as tumor associated macrophages, represent biological barriers to efficient nanomedicine delivery to cancer cells in solid tumors.
   b. No. of attendees : IEEE- 6; Guests-16

2. BIOMEDICAL SENSORDEVICES FOR POINT-OF-CARE DISEASE DIAGNOSIS by Dr. Gorachand Dutta of SMST, IIT Kharagpur
   a. Agenda: Over the years, there are increasing needs for the development of simple, cost-effective, portable, integrated biosensors that can be operated outside the laboratory by untrained personnel. However, to reach this goal a reliable sensor
technology based on printed electronics has to be developed. Our research aims to develop and establish the field of Biosensor and Electrochemistry for Bench to Bedside diagnosis. Our goal will be the use of redox cycling-based wash-free electrochemical technique in a portable electronic device that can be operated outside the laboratory for simple and effective point-of-care testing in India for early stage disease diagnosis (i.e. cancer, malaria, dengue, tuberculosis, HIV/AIDS etc.). The main challenges of point-of-care testing require to implement complex analytical methods into low-cost technologies. This is particularly true for countries with less developed health care infrastructure. Our washing-free technique is very simple and innovative. We can develop a low-cost disposable wash-free chip and our approach will make it possible to perform highly sensitive detection of biomarkers with printed electronics. The redox cycling technology will detect several interesting targets at the same time on a printed chip. The proposed research projects are inherently cross-disciplinary, combining expertise in biosensing, electrochemistry, electronics & electrical engineering, healthcare and manufacturing, entailing close collaboration and knowledge exchange among the different labs. Also our focused areas: (1) integration of biosensors with fuel cell for self-powered biodevices, (2) low-cost, fully integrated biosensor devices using Lab-on-Printed Circuit Board (PCB) approach, (3) enzyme based immunosensor (ELISA), (4) ultra-sensitive biosensors using magnetic bead assays, nanoparticles, CNT, dendrimer, (5) Lab-on-a-Chip devices for biomedical diagnostics, (6) bio-nanotechnology for drug delivery, (7) microfluidics.

b. No. of attendees: IEEE- 4; Guests-15

3. Dissection of The Fundamental Roles Played by Apicomplexan Aspartyl Proteases in Establishment of Parasitism by Dr. Budhaditya Mukherjee SMST, IIT Kharagpur.

a. Agenda: The phylum Apicomplexa consists of largest group of intracellular protozoan pathogens causing fatal diseases to humans. Central to the survival and dissemination of these obligate intracellular parasites is their capacity to actively invade and egress from host cells. An arsenal of secretory proteins is sequentially discharged from specialized secretory organelles micronemes & rhoptries which contain several proteins like perforins, adhesins, proteases, or kinases that allow these parasites to complete their life cycle. In this presentation, we will appreciate the role of such an essential aspartyl protease in the life cycle of this intricate obligatory parasite.

b. No. of attendees: IEEE- 3; Guests-12
B. Details of administrative meetings.

1. Future Direction of IEEE EMB Student Branch Chapter
   a. No. of attendees: IEEE- 4

2. Discussion on Student Integration in IEEE EMB Student Branch Chapter
   a. No. of attendees: IEEE- 3

3. Discussion On Organizing Future Talks Through IEEE EMB SBC
   a. No. of attendees: IEEE- 3

C. Awards and recognition anyone received from IEEE in your section - NA

D. Details of any special funds you received from IEEE - NA

### IEEE WOMEN IN ENGINEERING AFFINITY GROUP KHARAGPUR
#### SECTION (WE00155) – EVENT REPORT

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Event Name</th>
<th>Date</th>
<th>No. of attendees</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>IEEE WIE Talk (Postgraduate and postdoctoral opportunities: Melbourne)</td>
<td>29 January 2019</td>
<td>21</td>
<td>KVR Seminar Hall, Department of Electrical Engineering, IIT Kharagpur</td>
</tr>
<tr>
<td>2.</td>
<td>IEEE WIE Affinity group event on International Women's Day</td>
<td>08 March 2019</td>
<td>19</td>
<td>KVR Seminar Hall, Department of Electrical Engineering, IIT Kharagpur</td>
</tr>
</tbody>
</table>
**IEEE WIE Talk (Postgraduate and postdoctoral opportunities: Melbourne)**

Ms. Karishma delivered a talk about her experience and other potential inputs which provided new insights for the current research students planning for a PhD and Post-Doc abroad. She collaborated with fellow exchange students at doctoral and postdoctoral levels to build the Melbourne-India Graduate Research bridge by sharing information about opportunities as well as visa terms. It was a great opportunity for future aspirants to interact with her.

**IEEE WIE Affinity group event on International Women's Day**

On the occasion of International Women's Day 2019, IEEE WIE Affinity Group celebrated the event. Dr. Biswas gave an inspiring and motivating talk titled “Women hold Half the Sky”. She spoke about the role played by women in various fields, including science.

**Technical talk on 5G communication**

Dr. Sen spoke on the topic of “5G Communication” which facilitates the exchange of large amounts of information with widely varying content with high speed, utilizing low power and low cost. Dr Sen further motivated the attendees towards research in the fields of the communication revolution which needs knowledge of systems engineering as well as requirements engineering.

**WIE Ex Com Meeting 1**

<table>
<thead>
<tr>
<th></th>
<th>Event Description</th>
<th>Date</th>
<th>Room/Location</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Technical Talk on 5G Communication</td>
<td>08 March 2019</td>
<td>KVR Seminar Hall, Department of Electrical Engineering, IIT Kharagpur</td>
<td>19</td>
</tr>
<tr>
<td>4</td>
<td>WIE Ex. Com. Meeting 1</td>
<td>28 March 2019</td>
<td>Refreshment Stall, Dept. of E&amp;ECE, IIT Kharagpur</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>WIE Ex. Com. Meeting 2</td>
<td>11 November, 2019</td>
<td>Refreshment Stall, Dept. of E&amp;ECE, IIT Kharagpur</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>Technical Talk on computational Models for Language Comprehension</td>
<td>10 December, 2019</td>
<td>KVR Seminar Hall, Department of Electrical Engineering, IIT Kharagpur</td>
<td>14</td>
</tr>
</tbody>
</table>
A meeting of the executive committee of the WIE Affinity group was held on 28th March 2019 at 4:30 pm. It was attended by Somreeta Pramanik, Asmita Bose, Anusha Vuppputuri, Rachana Sathish, Moupali Chakraborty and Priyanka Deb Sinha. Following were discussed in the meeting.

**Division of responsibilities:** Since there still lacks clarity regarding the responsibilities of each member in the ExCom, it was decided to request Prof. Debdoot Sheet to share with us the Powerpoint presentation outlining the same. Rachana was assigned the responsibility of sharing MoM in the email thread which is to be updated on vTools by Anusha after approval of all members.

**Reports of previous events:** Report on the talk by Ms. Noor E Karishma Shaik on 'Postgraduate and postdoctoral opportunities: Melbourne' and Women's day celebration to be updated on vTools and Facebook page at the earliest.

**Sponsorship for ILS:** It was decided that a discussion with Prof. Varshney and Prof. Sheet is due before making a decision to provide sponsorship for ILS. Also, confirmation regarding the source of fund for the 'Start-up event' is required to ensure sufficient funds for the rest of the activities.

**Activities for this year:** Planning and preparation of proposals for the upcoming activities, including the STAR Program and the 'Start-up Summit' needs to be commenced as soon as possible. Asmita suggested to also conduct an "Innovation fair" for school students. The month of October was agreed upon as a suitable time for conducting this.

**Fund disbursement for start-up event:** Moupali and Priyanka will talk to Prof. Sheet regarding the reimbursement of the expenses to organize Women's Day and also previous year's events. They will also inquire about the money (Rs 20,000/-) that we have received to organize the start-up event the previous year.

- **WIE Ex Com Meeting 2**
A meeting of the executive committee of the IEEE WIE Affinity Group Kharagpur was held on 11th November 2019 at 6:00 PM. The meeting was attended by Somreeta, Anusha, Rachana, Priyanka and Shreya. Following were discussed in the meeting.

Conducting two technical talks before the end of the year. It was decided to contact Prof. Majira Sinha and one of the postdocs in Priyanka's lab to invite them to deliver a technical talk.

Organise volunteer sign-up drive. In order to increase the number of active volunteers in the working group, it was decided to gather more participants from various departments. Posters and forms for volunteer signup are to be circulated in all women's hostels.

"Editor Speaks" event. Keeping in view the suggestion put forward by Prof. Debdoott Sheet, the possibility of conducting a series of discussions headed by faculty members who serve as the editors of various journals and transactions was discussed. Considering the time constraints, it was decided to organise this event in the next year.

- Technical Talk on computational Models for Language Comprehension
  Dr Manjira Sinha delivered an interesting talk on language comprehension. She talked about the importance of language comprehension and the role it plays while designing computational models in natural language processing. Human comprehension of language is influenced by the physical world including the societal norms and other biases. Much like how the nuances of one language are lost while translated to another, computational modelling is also affected by the same challenges. The talk shed some light onto these aspects.

Future Agenda for 2020

1. STAR Program Pre-University Outreach
   The IEEE Student-Teacher and Research Engineer/Scientist (STAR) Program was developed to address the growing concern that, at a young age, girls are discouraged from careers in mathematics, science, and engineering. This educational outreach program promotes involvement of IEEE members with local junior high and high schools in order to create a positive image of engineering careers. We look forward to organizing the STAR program at schools near Kharagpur area and enlightening the young minds with various career opportunities which can be explored.

2. Editorial Conclave
   A series of events are to be conducted, where the faculty members who are also editors of peer-reviewed journals and also serve as a member of technical committees, will share their experience in reviewing articles. This program would include discussions which could help the student community to gain an insight to prepare well-written manuscripts and theses.
Names of outgoing committee members of 2019

Somreeta Pramanik : Chair
Asmita Bose : Vice Chair
Anusha Vupputuri : Secretary
Rachana Sathish : Joint Secretary
Moupali Chakraborty : Treasurer
Priyanka Deb Sinha : Assistant Treasurer

Names of incoming committee members of 2020

Prof. Manjira Sinha : Chair
Rachana Sathish : Vice Chair
Anusha Vupputuri : Secretary
Nidhi Pathak : Joint Secretary
Priyanka Deb Sinha : Treasurer
Aishwariya Chakraborty : Assistant Treasurer