

IEEE Sweden Section

Samarth Deo, Chair

Section Vitality

IEEE Sweden Section conducts election during November-December annually. For 2021, elections were held in November and a new board was reported before the end of year. However, since we follow local tax office regulations, the fiscal year formally ends at the end of March, when the AGM is conducted and the board hands over the responsibilities to the new board.

Traditionally, the Vice-Chair takes over the Chair role, but it also depends on the results from the voting. We do take into consideration new suggestions made by members in the section. For 2021, the Vice-Chair is taking over the role of Chair since the current Chair has served for several years now and wishes to step down.

The sections hold ExCom meetings monthly, which are all reported in the vTools system. For 2020, the section held twelve executive meeting, attended by most of the board members.

As a step to retain members, the section membership development officer runs the senior member campaign twice a year. During the last year, we have had several members promoted to senior members and also three new IEEE Fellows.

Due to the pandemic of Covid-19, the IEEE Sweden Section initially had a drop of its active members like the other sections during 2020. The number of active members has been slowly recovered over the past year. In February 2021, we have 1,967 active members in the Sweden Section, of which 56 of them are Fellows or Life Fellows, and 389 of them are Senior Members or Life Seniors. The number of members at the Fellow level and at the Senior Member level have been steadily increasing during the past years.

Students

The section has six registered student branches. While three of them have been very active (KTH, Chalmers and Blekinge), the other three have been dormant for some time now. However, in 2020, we were successful in reactivating another student branch at Linköping. There is a new board and a new branch counsellor, and they have already conducted two events. Chalmers and KTH continue to hold their events together with Young Professionals and Women in Engineering Affinity Groups of the section.

Chalmers Student Branch, together with YP of section was going to conduct the 2020 edition of the IEEE R8 SYP but couldn't be due to the ongoing pandemic.

Affinity Groups

Both, the Young Professional and Women in Engineering Affinity Groups have had their elections and they have a new board in place. There were a number of activities conducted by both, some below:

The **Young Professional Affinity Group** conducted the following events in the past few months:

1. Co-hosted two online talks as part of the connecting expert's series
2. Mozilla Fellow Anouk Ruhaak talking about data stewardship
3. ABB R&D Manager Samarth Deo talked about Advanced Control for HVDC Transmission.
4. Worked with Region 8 CCT, SAC, & YP to deliver an alternative event to the R8SYP, a virtual event called the IEEE vSYP 2020.
5. Hosted the opening day of the IEEE vSYP 2020, with talks from our YP Chair, Vice-Chair, and Section Chair.
6. Held a vSYP talk on 6G and its applications in aviation, when the Sweden Section Vice -Chair filled in on short notice.
7. Helped organize another Mozilla Fellow, Julia Reinhardt - who amongst other things contributed to the original draft of GDPR, to speak as part of the WIE program for the vSYP.

Meanwhile, the **Women in Engineering Affinity Group** conducted the following two activities:

1. Seminar, titled on “**Adoption of Challenge Driven Approach (CDE) Approach under iGrid project**” had Diana Rwegasira, from KTH EECS as speaker. The talk focused on the iGrid project specifically on

demonstrating how the CDE (Challenge Driven Education) methodology has been used towards providing mutual benefits in developing and developing countries upon solving societal problems. In a nutshell, the area to be discussed under this project are control and monitoring aspects with Agent-Based System, Communication and Security with IoT, e-health, etc. Achievements and opportunities towards the use of CDE are also amongst the discussion."

2. The second event was titled, “**Multi-sensor fusion factor Graphics: Tightly coupled odometry and mapping**”. The talk included recent research work in multi-sensor fusion for highly robust, high frequency robot or autonomous vehicle odometry. It will be discussed as to how windowed smoothing with Factor Graphs can achieve low drift motion estimation over longer trajectories - how it can outperform bespoke methods for visual odometry or LIDAR odometry by being robust to their individual failure modes. Key insights will be shared about subtleties such as LIDAR motion compensation, passive sensor synchronization, and how with careful information fusion full frame rate estimation can be achieved. The approach to be presented is robust to lighting changes, sparse structure in the scene and dynamic objects by organically switching between modalities. Demonstrations will be shown using datasets captured from hand-held systems, mobile robots, and suburban driving.

Chapters

The Section has fifteen registered chapters, five student branch chapters (KTH WIE, KTH PE, Blekinge WIE, Chalmers WIE and Chalmers EP) and two affinity groups (WIE and YP).

The Annual Chapter Chairs workshop is a forum for all chapter, affinity group, student branch chairs to discuss events that could be done in joint collaboration. The meeting has been tradition since 2016 and is a reason for successful operation of the chapters. During the meeting, chapters are also briefed about the budget process for the coming years, making sure the budget is submitted, approved at the right time and the section treasurer has all the input needed to submit to the IEEE HQ.

The section works in close collaboration with other Nordic sections- Norway Finland, and Denmark. We have two joint chapters with the other three sections named above and it is working out well.

Industry

Most of the activities conducted in the section are in collaboration with industries within Sweden. We have a dedicated Industry Relations Officers appointed in the executive committee to help with joint events and increase the sections visibility in the Swedish industries. The section board itself has several representatives from the industry.

Activities since the last report

Besides the activities from YP and WIE as above, there are several other activities by various chapters in the section. We report all our events in vTools, where details can be found.

Planned activities

A number of activities are planned by the chapters, affinity groups and student branch. They can all be found in vTools.

How Region 8 can be of help to your Section, members, and activities

We are doing good so far. No immediate help needed.