

Machine Learning for Communications (MLC)

“Foster research and innovation surrounding the use of machine learning (ML) for the physical (PHY) and medium access control (MAC) layers for all types of communication systems, such as wireless, optical, satellite, and molecular.”

- Founded in November 2018, 370 Members (i.e., subscribers to the email list)
- Website: <https://mlc.committees.comsoc.org/>
- Chairs: Jakob Hoydis, Elisabeth de Carvalho, Marwa Chafii, Tim O’Shea + 9 other officers
- Goals: Best Readings, Special issues, Conferences, Workshops, Track, Sessions, Symposia, Summerschools, Data science competitions, Research Library, Blog

Key Accomplishments in 2020

- **Special Issues**
 - Machine Learning in Communications and Networks, IEEE JSAC Series (Hoydis, Carvalho)
 - Beyond 5G Communications, IEEE Access Special Section (Hoydis)
- **Regular Journals with dedicated ML/AI areas**
 - IEEE Trans. Wireles. Commun.: Topic Area Machine Learning and Artificial Intelligence for Wireless (O'Shea, Carvalho, Hoydis)
- **Conference Organization**
 - SPAWC'20: Special Session on Machine Learning for Communications (Chafi)
 - ICASSP'20: Special Session on Machine Learning for Communications (Kountouris)
 - ICC'20: Open Workshop on Machine Learning in Communications (O'Shea, de Carvalho, Hoydis, Kountouris)
 - GC'20: Workshop on Machine Learning in Communications (O'Shea, de Carvalho, Hoydis, Kountouris)
 - GC'20 SAC: Machine Learning for Communications (Stanczak)
 - GC'21 SAC: Machine Learning for Communications (Carvalho)
 - ICC'21 SAC: Machine Learning for Communications (Kountouris)
 - ICC'22 SAC: Machine Learning for Communications (Two members from the ETI MLC)
- **Online Content**, Research library, News, Datasets (Ait Aoudia, Bjoernson, Fortuna, Arnold)
- **Notable activities**, Data competitions, panels, workshop keynotes, etc. (all officers)

Plans for 2020 and Beyond

- MLC is very healthy & growing, with vibrant community & activities
- One of the hottest topics in comms right now, trend is unlikely to stop
- Todos:
 - Update Best readings
 - Restructure library
 - Election of new officers to re-energize the ETI (if not elevated to TC)
 - **Prepare for GC ETI Meeting in December with a plan on how to evolve this ETI**

Criteria for Elevation to TC

- **Visibility**
 - Website (up-to-date, content)
 - Visibility outside of website (due to subcommittee activities).
- **Participation**
 - Officers (engagement and responsiveness)
 - Membership (number of members, geographic reach, participation in activities)
- **Activities**
 - Journal participation (sponsorship or co-sponsorship of journals) and quality of the journal
 - Participation in workshops and symposia, and the success/quality/attendance of these events.
 - Standards activities
 - Other activities
 - Meetings held (and number of members attending) and meetings attended
 - Tutorials
 - Awards and distinguished lecturers
- **Technical area**
 - Importance of technical area (is this a lasting area that should become a technical committee eventually, a passing “hot topic” with a limited lifespan, or something in between?)
 - Uniqueness of technical area (differentiation from existing technical committees)
- **Future plans and potential impact**
 - Future plans
 - Potential impact

Discussion

- How do you feel about the evolution/future of this field? Ripe or hype?
- What should we do better? What are we not doing?
- Options for elevation
 - New TC with current scope?
 - New TC with broader scope (possible merger with the NI ETI)?
 - No new TC, make sure that existing TC/journals welcome MLC work?
 - ...?
- Question related to elevation
 - Is ML/AI necessary to attract broad interest from industry, students, academia, i.e., is a TC on MLC a marketing argument?
 - How are we different from the TC on Cognitive Networks (<https://cn.committees.comsoc.org/>)?

Meeting minutes

- Meeting held on June 24, 2020, 3-4pm CET, WebEx
- 48 participants
- After a rapid presentation of the key accomplishments, the remaining time of the meeting was used for a discussion on the future of the ETI MLC.
- Key conclusions:
 - There seems to be general consensus that this ETI should be developed into its own TC.
 - A merger with the ETI on NI was not seen desirable by any participant.
 - The TC's focus should stay on L1/L2, maybe adding communications for Edge AI/Distributed Learning.
 - It is important to build bridges to other TC/ETIs to avoid silos.
 - Prepare to be elevated by the end of 2020.