IEEE ITC Special Interest Group on Network Measurements and Analytics (NMA)

Activity Report 2016 (by Dr. Pedro Casas)

As we observe the explosion of demand for cloud computing and big data, and we witness exciting changes in the ways we do networking, we are facing new challenges in measurement and analysis across the entire network stack. In this new networking context, we believe that machine learning has a strong potential in solving highly complex and intensive data-driven problems.

The aim of the NMA Special Interest Group (SIG) is to foster the research and development of novel analytical approaches and technical solutions that can exploit network measurements and big data analytics and frameworks in the analysis of complex data communication networks such as the Internet. NMA mission is to collect and disseminate worldwide activities conducted in academia and industry in the domains of network measurements and applied (big) data analytics.

The focus of NMA is on improving the practice or application of measurements across the entire network stack up to the application layer, with an emphasis on new areas of data communication networks such as SDNs, CDNs, Cloud Networks, Social Networks, mobile applications and data centers. The SIG also tracks more traditional network measurement topics such as traffic classification, network security and anomaly detection, network performance evaluation and traffic analysis.

Major Conferences for NMA Research in 2016-2017

NMA topics are linked to different conferences, workshops and specific journals. The following list includes only the major conferences with a specific focus on network measurements and analytics. Other conferences, workshops and events where NMA topics are present in their CFPs but are not part of the core of the event are listed at the NMA SIG website (http://nmasig.info/).

TMA – Network Traffic Measurement and Analysis Conference

The new TMA Conference (http://tma.ifip.org/) is the flagship annual conference of the Traffic Monitoring and Analysis (TMA) community, and it is also the flagship conference of the NMA SIG. TMA is a highly selective venue for the presentation of both early-stage and mature research as well as controversial works on all the aspects of network measurements. The TMA conference is a unification of three successful workshops: the Traffic Monitoring and Analysis Workshop (TMA), the IEEE Workshop on TRaffic Analysis and Characterization (TRAC), and the IEEE Workshop on Network Measurements (WNM). The TMA Conference 2017 takes place in Dublin, Ireland, on June 21-23 2017.

IMC – Internet Measurement Conference

The IMC conference is an annual, single-track conference focusing on Internet measurement and analysis, sponsored by ACM SIGCOMM and ACM SIGMETRICS. IMC is the top venue for Network measurements-driven research; IMC papers should improve current understanding of how to collect or analyze Internet measurements, or give insight into how the Internet behaves. IMC is currently recognized as the most important conference on network measurements, with an acceptance rate around 20% and about 200 submissions. IMC 2016 takes place in California, USA, on November 14-16 2016.

PAM – Passive and Active Measurement Conference

PAM is the oldest conference in network measurement, started back in 2000 as the Passive and Active Measurement workshop. PAM focuses on research and practical applications of network measurement and analysis techniques. PAM has traditionally focused on research and practical applications of specific network measurements. However, over the last years, PAM has broadened its scope to encompass measurements of networked applications and systems, content distribution networks, online social networks, overlay networks, and more. PAM 2017 takes place in Sydney, Australia, on March 30-31 2017.

SIGCOMM – ACM Special Interest Group on Data Communication Conference

SIGCOMM is the most important and most recognized conference on data communication networks, and encompasses network measurement as one of its core topics. SIGCOMM is the flagship annual conference of the ACM Special Interest Group on Data Communication, started back in 1995. SIGCOMM is a highly selective conference where full papers typically report novel results firmly substantiated by experimentation, deployment, simulation, or analysis; the conference has an acceptance rate around 17% and gets around 250 submissions yearly. SIGCOMM 2017 takes place in Los Angeles, USA, on August 21-25 2017.

CoNEXT – Conference on emerging Networking EXperiments

CoNEXT is focused on innovative developments for networking, including Internet measurements, and is sponsored by ACM SIGCOMM. CoNEXT covers a wide-ranging set of topics, including Internet measurements and modeling, advanced protocols and services, networked games, multimedia services, routing, security traffic engineering, peer-to-peer and overlay networks, wireless and mobile networks, ad-hoc and sensors networks or autonomic and dependable communications are frequently found in its calls for papers.

Major Journals and Magazines for NMA Research

While there is a long list of journals and magazines where NMA research finds topic-matching hosting, the following list reports the most selected venues for NMA research.

IEEE Journal on Selected Areas in Communications - IF: 3.672

The IEEE Journal on Selected Areas in Communications (J-SAC) is ranked number one in telecommunications journals (according to impact factor). Each issue of J-SAC is devoted to a specific technical area within the scope of the IEEE Communications Society. Papers submitted to J-SAC must be targeted to a specific issue for which a call for papers has been published.

IEEE/ACM Transactions on Networking - IF: 2.186

The IEEE/ACM Transactions on Networking's high-level objective is to publish high-quality, original research results derived from theoretical or experimental exploration of the area of communication/computer networking.

ACM Computer Communication Review - IF: 1.402

The ACM CCR magazine is the online magazine of SIGCOMM. It publishes both peer-reviewed technical papers and non-peer reviewed editorial content. CCR has a strong emphasis on quick publication of interesting technical work, even if the work is still in progress, thereby keeping the SIGCOMM membership current with state-of-the-art research.

IEEE Transactions on Network and Service Management - IF: 1.296

The IEEE Transactions on Network and Service Management publishes (online only) peer-reviewed archival quality papers that advance the state-of-the-art and practical applications of network and service management. Theoretical research contributions (presenting new concepts and techniques) and applied contributions (reporting on experiences and experiments with actual systems) are the main target.

IEEE Communications Magazine - IF: 5.125

The IEEE Communications Magazine provides timely information on all aspects of communications: monthly feature articles describe technology, systems, services, market trends, development methods, regulatory and policy issues, and significant global events.

ELSEVIER Computer Communications - IF: 2.099

Computer Communications is a peer-reviewed international journal that publishes high-quality scientific articles (both theory and practice) and survey papers covering all aspects of future computer communication networks (on all layers, except the physical layer), with a special attention to the evolution of the Internet.

ELSEVIER Computer Networks - IF: 1.446

Computer Networks is an international, archival journal providing a publication vehicle for complete coverage of all topics of interest to those involved in the computer communications networking area.

IEEE Network - IF: 2.899

The IEEE Network magazine focuses on highlighting and discussing major computer communications issues and developments. The articles are intended to be surveys or tutorials, slanted towards the practical, and comprehensible to the nonspecialist, as well as practitioners.