Stoczek utcából 8 év alatt világsiker (High Speed Network Laboratory)

Boda Miklós
Főtitkár

EAI European Alliance for Innovation

Miklós Boda
Secretary General

Kezdet

1991 december **Gordos Géza** tanszékvezető professzor úr és Boda Miklós kutatási igazgató, ELLEMTEL, találkozik az IEEE Globecom konferencián Phoennix-ben.

1992 május – megalakul a HSN Lab

Elkezdődtek a munkák

- Cél világszínvonal, semmi középszerűség, kreatív és csapatban is dolgozni tudó munkatársak
- Büdzsé, szerződések, fizetési modellek, tarthatóság biztosítása stb. Pro Progressio (vállalat éves költségvetés)
- Hálózatok teljesítőképességi tulajdonságai, sorbanállási elmélet matematikailag nehéz problémák
- Matematikusok bevonása (EKTE Fraank András csapatával)

Elvárás a diákoktól

- Csapatmunka kombinálva egyéni ambícióval, nyitottság, szociális készség, angolnyelv ismeret.
- Publikálás legjobb konferenciákon és folyóiratokban
- Mi segítjük publikálásban, kapcsolat teremtési lehetőségekben és téma választásban
- A kontakt hálózatom is rendelkezésre állt.

Ph.D. oktatás

- Blokkosított Ph.D. kurzusok (Gordos professzor úr kezdeményezésére)
- Az oktatók két hetes turnusban előadást tartottak és vizsgáztattak (Arne Nilsson, Serge Fdida, Harry Perots)
- Más típusú oktatás (Faragó András személyesen átélt Richmond-ban, Harry Budapesten)
- A diákok hosszabb-rövidebb időre Stockholm, Lund (Télia, Ericsson, Ellemtel) valamint University Columbia, Sorbonne, NY – kutatásokban részvétel, IFI P
- Kezdenek jönni az eredmények: nívós publikációk, konferencia részvételek (nemcsak az IFI P vagy Belcore barátaim, hanem mások is kezdenek felfigyelni a csapatra)

A nagy áttörés

- berlini ISS konferencia, ahol Haraszti Zsolt mindent vitt, az összes újságok írtak róla
- munkájának folytatása a Plazma, mely hálózat irányító termék potenciállal rendelkezett

NET STRATEGY

NEW TOOLS FOR A NEW ERA

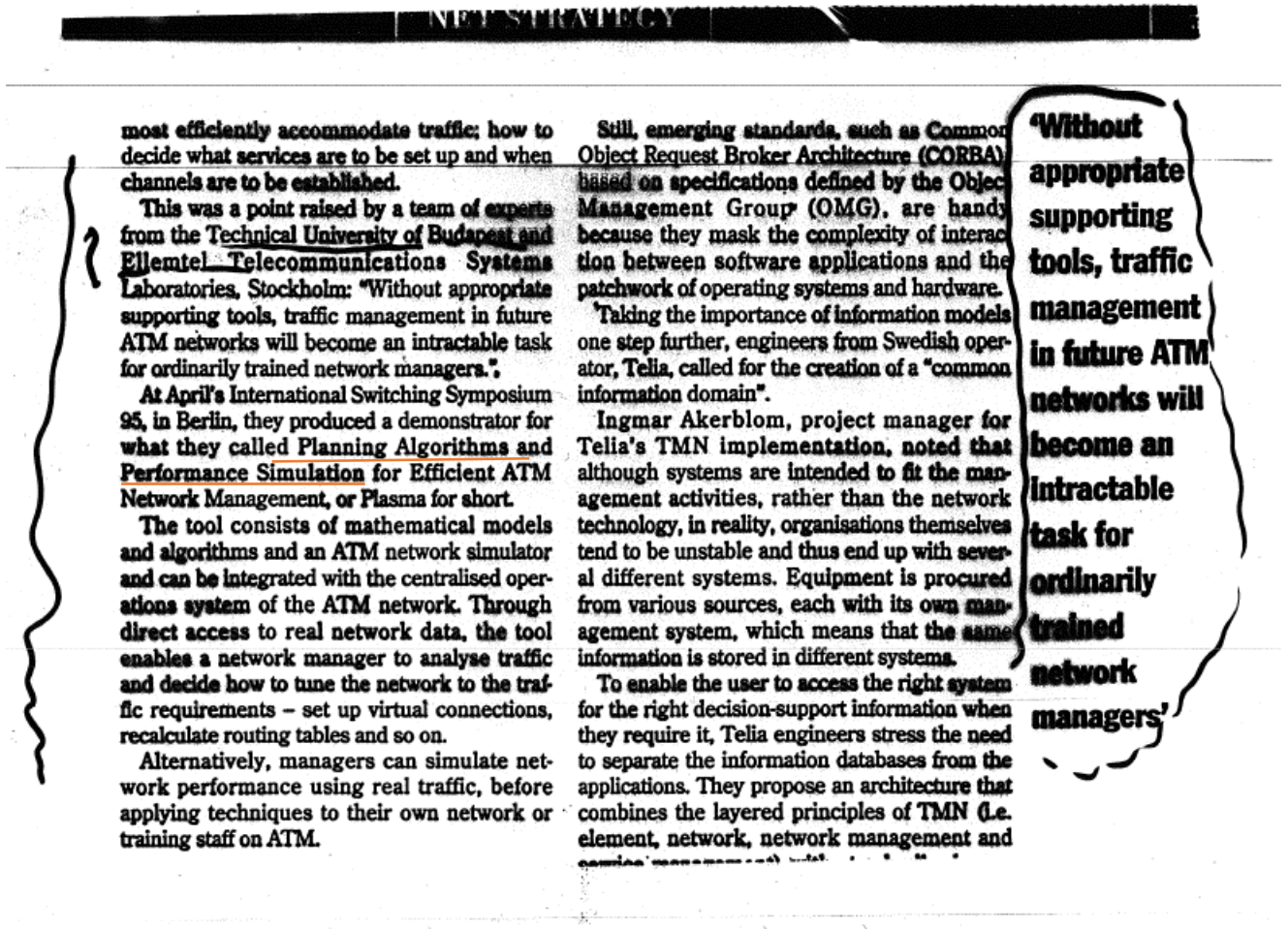
Customer preferences, spurred by technological paradigms like ATM, TMN and IN, have given rise to new expectations of network management. Vineeta Shetty reviews some of the issues and solutions emerging from the recent International Switching Symposium 95 in Berlin

Liberating though they are, sophisticated new technological platforms bring with them a whole new set of network management problems. While giving the network operator more flexibility in transporting and controlling traffic, ATM, TMN and IN also demand nimbler tools and solutions to support multiple vendors and customer configurability.

The business orientation of many of these network platforms makes monitoring of quality and grade of service also critical, the telco's objective being to keep call blocking as low as possible and network revenue as high as possible. Raising the IQ of the management system in line with advances in the network, and making it fit the business strategy of the user, are key concerns of network planners.

One of the dilemmas in ATM planning, for instance, is how to arrive at the optimal network strategy: how to set up virtual connections to

A nagy áttörés



NETSTRATEGY

most efficiently accommodate traffic; how to decide what services are to be set up and when channels are to be established.

This was a point raised by a team of experts from the Technical University of Budapest and Ellemtel Telecommunications Systems Laboratories, Stockholm: "Without appropriate supporting tools, traffic management in future ATM networks will become an intractable task for ordinarily trained network managers.".

At April's International Switching Symposium 95, in Berlin, they produced a demonstrator for what they called Planning Algorithms and Performance Simulation for Efficient ATM Network Management, or Plasma for short.

The tool consists of mathematical models and algorithms and an ATM network simulator and can be integrated with the centralised operations system of the ATM network. Through direct access to real network data, the tool enables a network manager to analyse traffic and decide how to tune the network to the traffic requirements – set up virtual connections, recalculate routing tables and so on.

Alternatively, managers can simulate network performance using real traffic, before applying techniques to their own network or training staff on ATM.

Still, emerging standards, such as Common Object Request Broker Architecture (CORBA), based on specifications defined by the Object Management Group (OMG), are handy because they mask the complexity of interaction between software applications and the patchwork of operating systems and hardware.

Taking the importance of information models one step further, engineers from Swedish operator, Telia, called for the creation of a "common information domain".

Ingmar Akerblom, project manager for Telia's TMN implementation, noted that although systems are intended to fit the management activities, rather than the network technology, in reality, organisations themselves tend to be unstable and thus end up with several different systems. Equipment is procured from various sources, each with its own management system, which means that the same information is stored in different systems.

To enable the user to access the right system for the right decision-support information when they require it, Telia engineers stress the need to separate the information databases from the applications. They propose an architecture that combines the layered principles of TMN (i.e. element, network, network management and

'Without appropriate supporting tools, traffic management in future ATM networks will become an intractable task for ordinarily trained network managers'

A nagy áttörés

TELECOM 95 SHOW PREVIEW

By David Greenfield, Data Communications Internationa

Telecom 95: When Worlds Converge

Key presentations focus on unifying technologies like global virtual LANs and ATM

Any doubts about the path that networking will take to the next century should be dispelled later this month, when the leading lights of the communications industry meet at the Telecom 95 show in Geneva. Convergence is the official theme for this installment of the ITU's quadrennial conference, with the primary focus on bringing together the once distant worlds of telecommunications and data communications.

Some big changes have taken place since the last Telecom get-together in 1991. Many nations in Europe and the Asia-Pacific region have taken big strides toward deregulating their telecom markets. On the international scene, major carriers are striking alliances to deliver global networking services covering voice, data, and video traffic.

On the technology side, the most obvious change since 1991 has been the arrival of asynchronous transfer mode (ATM) technology as the key enabler of convergence for voice and data. Eventually, ATM also will foster another type of convergence—merging the now disparate worlds of local- and wide-area networking.

Before that happens, however, some big changes in network management and architectures will need to occur. The key technical papers to be presented at Telecom 95 focus not only on the challenges of deploying ATM but also on the trends that are sure to shape corporate computing over the next decade.

David Greenfield is international technology editor at DATA COMMUNICATIONS INTERNATIONAL and is based in Jerusalem. He can be reached on the Internet at dgreenfield@mcgraw-hill.com.

LET'S GET VIRTUAL

One of the more intriguing prospects for unifying global communications is the development of virtual LANs. Virtual networking promises to bring a high degree of flexibility to global networks. Instead of physically grouping nodes to form workgroups—as is the case with conventional Ethernet, FDDI, and token ring networks—virtual networks define workgroups through software and then rely on a switched infrastructure (such as ATM) to establish the necessary physical connections. (For more about virtual LANs, see "Switched Virtual Networks," September 1994, and "Virtual LANs Get Real," March 1995.)

Once a network is properly configured for virtual networking, net managers can assign users to workgroups simply by moving icons on a management console. In theory, these users could be located anywhere in the world. But global virtual LANs aren't likely to develop anytime soon. For the time being, the relatively slow speeds of WAN connections will limit the geographic scope of virtual LAN groupings.

ATM could deliver the speed needed for global virtual networks, but ATM deployment is still limited, and it's too costly for many companies. But as ATM develops and costs come down, companies will gain the ability to tie outside companies, telecommuters, and mobile workers into virtual LANs. When that happens, network managers will face the daunting task of maintaining an increasingly complicated WAN carrying virtual LANs all over the world.

This task will be too complicated for net managers to troubleshoot alone and will demand the use of sophisticated software. That's one of the conclusions drawn in "Virtual Networking and Real-Time Dimensioning—A Paradigm Shift in Network Management," one of the papers slated to be presented at Telecom 95. The paper is the work of András Faragó, Géza Gordos, Zsolt Harasztl, and Tamás Henk of Budapest (Hungary) Technical University's Telecommunication and Telematics Department, along with Miklós Boda of the Ellemtel Telecommunication System Laboratories (Älvsjö, Sweden) and Soren Blaabjerg of the Technical University of Denmark (Lyngby).

Convergence is the official theme for this installment of the ITU's quadrennial conference.

The presenters outline the key problems that will face network managers in the global virtual LAN age, such as trying to optimize enterprise internetworks configured with dozens of virtual LANs. As the number of virtual LANs increases, net managers simply won't be able to keep track of how to balance available bandwidth among those networks, the authors contend.

The solution: Intelligent or self-learning software is needed to manage the networks. This requires a shift in corporate culture. "It used to be that companies could just throw more bodies to solve a management problem," Faragó observes. "But now, the problems have

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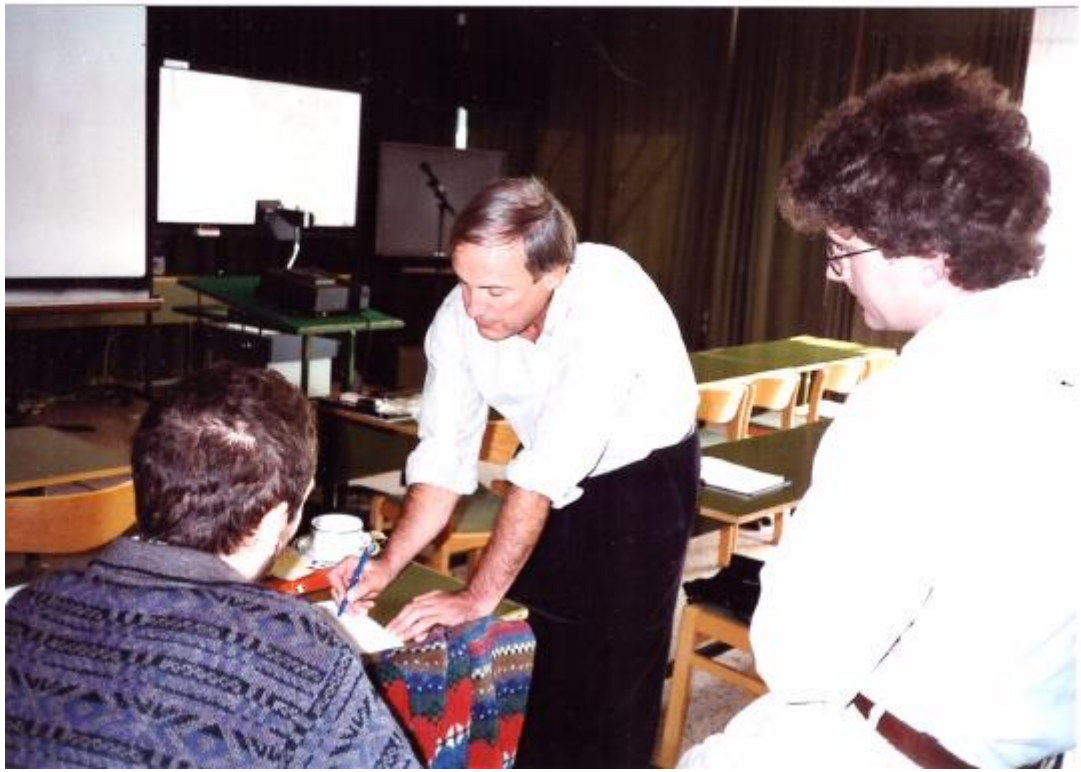


Hogyan illeszkedtünk be a nemzetközi IFI P közösségbe

Hogyan illeszkedtünk be a nemzetközi IFI P közösségbe

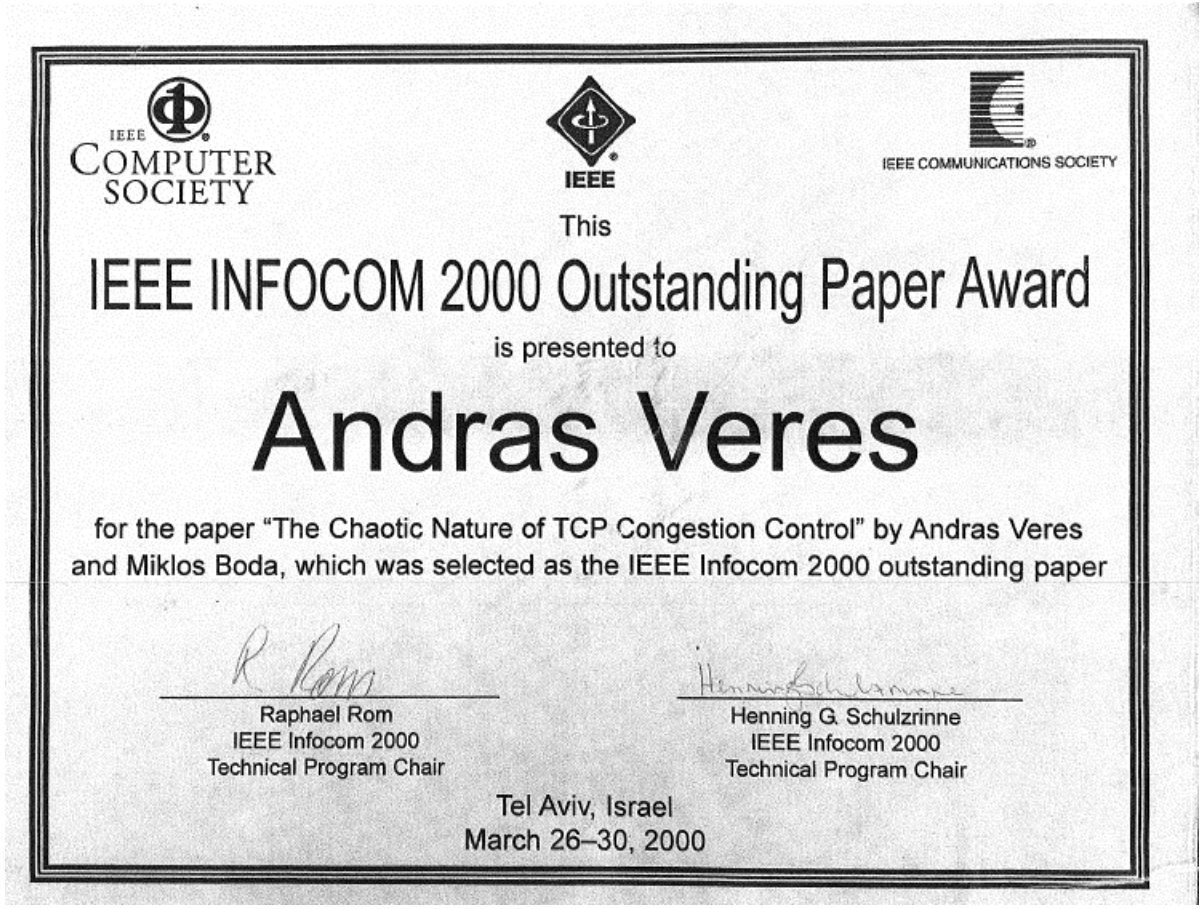
… és persze a pihenés

Harry és egy görög kollegája próbált minket zorbára tanítani

… és persze a pihenés

… és persze a pihenés

Megérkeztünk...



IEEE COMPUTER SOCIETY

IEEE

IEEE COMMUNICATIONS SOCIETY

This

IEEE INFOCOM 2000 Outstanding Paper Award

is presented to

Andras Veres

for the paper "The Chaotic Nature of TCP Congestion Control" by Andras Veres and Miklos Boda, which was selected as the IEEE Infocom 2000 outstanding paper

Raphael Rom
IEEE Infocom 2000
Technical Program Chair

Henning G. Schulzrinne
IEEE Infocom 2000
Technical Program Chair

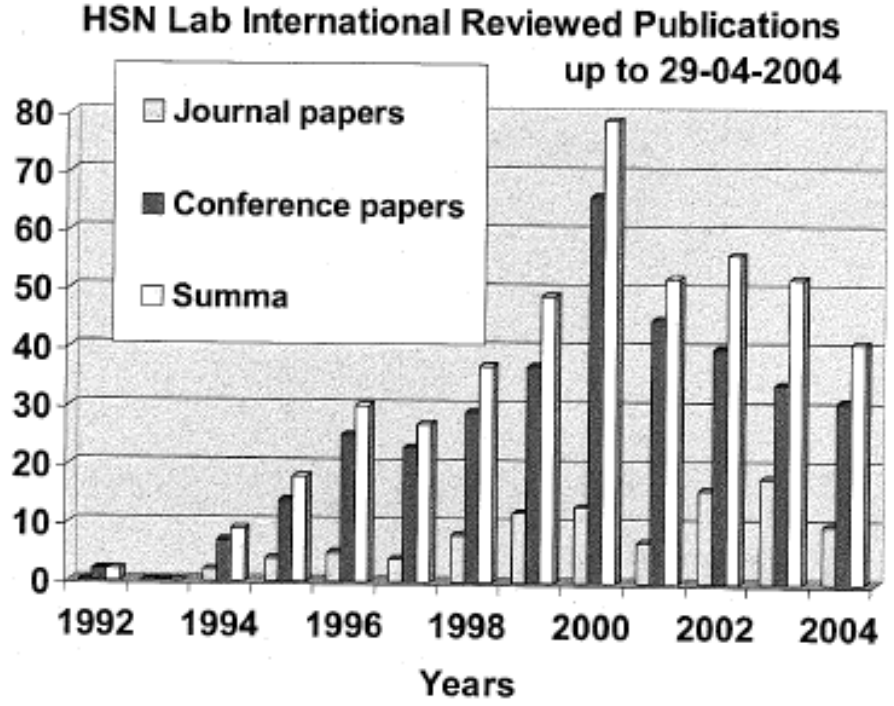
Tel Aviv, Israel
March 26–30, 2000

A megérkezésünk mindenki általi elfogadása

- Ugyanaz év szeptemberében hasonló témakörből való konferencián, utolsó előadásként extrán berakták ezt az Outstanding Papert a Tel Aviv-i konferenciáról. Ahol garantálták előadás után a kérdezés lehetőségét.
- Walter Willinger, Belcore – elismerte az eredményt
- Amerikai „hakni” – Vattay Gábor (fizika professzor, ELTE)

A munka folytatódott...

Publications



... kevesebb vezető kutatóval

IFIP TC6 Working Group 6.3

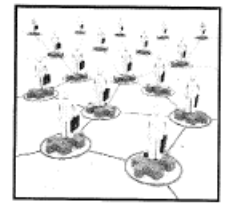
Performance of Communication Systems

- Home
- List of Members
- Schedule of Events
- Past Conferences and Workshops
- Event Organisers
- Contact & mailing list
- History

WG 6.3 is aimed at promoting the use of the performance evaluation techniques for studying and optimizing existing and future computer communication systems.

Special interest is on Future Internet systems, spanning the whole spectrum of research topics in wired, wireless and hybrid networking environments (e.g., wireless networks, self-organising networks, integrated cellular and mobile networks, SDN, NFV, cloud-based systems, mobile clouds, IoT, content-centric networks). The WG is also interested in the performance of human-centric Internet systems, stemming from the emerging convergence between the cyber and the physical world (typically referred to as "Cyber Physical Convergence" and/or "Internet of People"), thus looking at topics such as Mobile and Online Social Networks.

In addition, the WG also looks at performance aspects of the convergence between communication and computing solutions, primarily for pervasive networking environments, thus also looking at areas such as Fog Computing and Mobile Edge Computing.

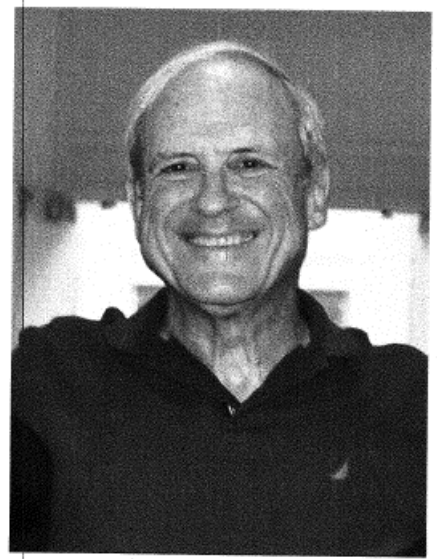


Scope

The WG organizes and promotes activities related to modeling, analysis, simulation and measurement of computer communication systems, with a special attention to studying and optimizing the performance of:

- Future Internet architecture, protocols and services;
- Internet of Things;
- Internet of People;
- Green networking;
- Content- and service-centric architectures;
- Peer-to-peer, overlay, and content distribution networks;
- Mobile and ubiquitous networks;
- Self-organizing networks;
- Mobile and on-line social networks;
- Integrated network and computing services (Fog Computing, Mobile Edge Computing);
- Wired/wireless computer communication networks;
- Existing and future network technologies;
- LAN/MAN/WAN;
- Network Services and Applications.

Dr. Harry



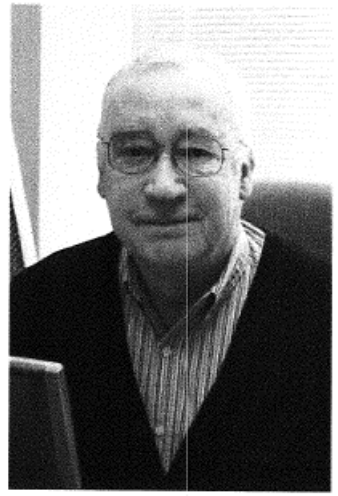
Emeritus Professor of Computer Science, NC State University. Dr. Harry Perros is a retired NC State University Alumni Distinguished Graduate Professor and an IEEE Fellow. He received the B.Sc. degree in Mathematics in 1970 from Athens University, Greece, the M.Sc. degree in Operational Research with Computing from Leeds University, England, in 1971, and the Ph.D. degree in Operations Research from Trinity College Dublin, Ireland, in 1975. He held visiting faculty positions at INRIA, Rocquencourt, France (1979), NORTEL, Research Triangle Park, North Carolina (1988-89 and 1995-96), University of Paris 6, France (1995-96, 2000, 2002, 2012), University of Paris 13, France (2005-2006), and Victoria University, Wellington, New Zealand (2006). He published 220 journal and conference papers primarily in queueing theory and performance modeling of communication systems, and also in software modelling, A.I., trust management, and security. Also, he published seven print books: Queueing Networks with Blocking: Exact and Approximate Solutions, Oxford

Remembering Arne Nilsson

We fondly remember Arne Nilsson, professor emeritus of ECE and pivotal computer networking researcher who sadly passed away on December 8, 2020.

December 14, 2020 Charles Hall

Arne Nilsson, professor emeritus of electrical and computer engineering at NC State and pivotal leader in communications and signal processing group. He was mainly concerned with helping others and promoting their work."



"He guided me every step of the way when I was hired back in 2003," recalled Do Young Eun, professor of electrical and computer engineering. "Even my first version of ECE 570 lecture notes was from him. He was always caring, standing there as a big man for then-junior [networking faculty]."

"When I was finishing up grad school at NC State in the late 1980s, he referred me to a classmate from Lund who was starting an R&D center for Ericsson in the promising area of cellular communications," noted Greg Bottomley, teaching professor of electrical and computer engineering. "It led to my dream job. A wonderful person."

Nilsson made significant and lasting contributions to the Department, North Carolina, Sweden, and the Computer Networking community. We remember these contributions with gratitude.

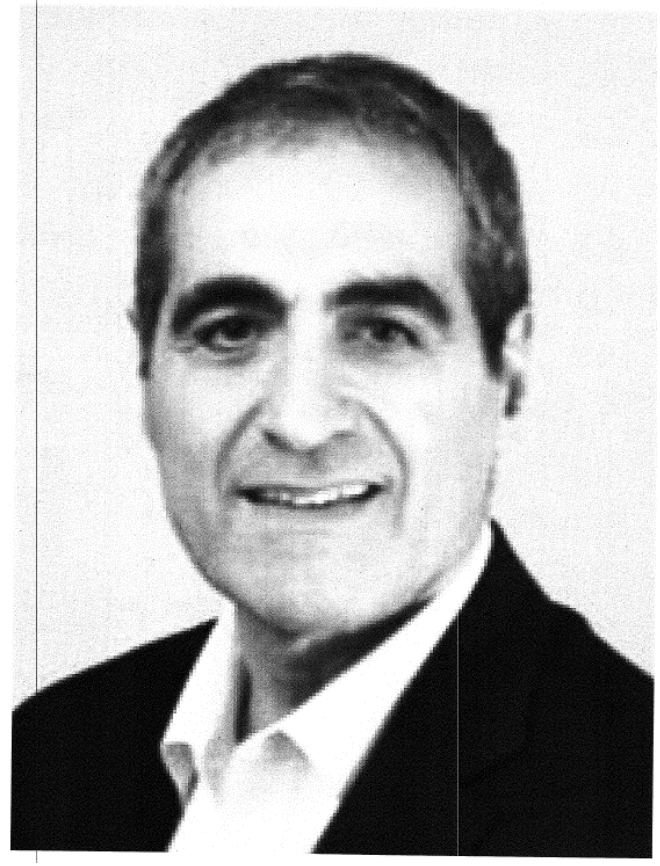
Serge Fdida

Serge Fdida Serge Fdida is a Professor with Sorbonne Université since 1995. His research interests are related to the future internet technology and architecture. He has been leading many research projects in Future Networking in France and Europe, notably pioneering the European activity on federated Internet testbeds. He established PlanetLab Europe in 2007 and the OneLab and FIT facilities. Serge Fdida has published numerous scientific papers, in addition to a few patents and one rfc. He was one of the founders of the ACM Conext conference, general chair of ACM Mobicom 2015 and IEEE Infocom 2019. He is a Distinguished ACM Member and an IEEE Senior member. Serge Fdida has also developed a strong experience related to innovation and industry transfer, - he was the co-founder of the Cosmos company, - one of the active contributor to the creation of the Cap Digital cluster in Paris, - the recipient of the ATOS/Renault chair on Smart connectivity and the President of EIT Health France.

Serge Fdida also contributed to the governance of Higher Research and Education institutions as Vice-President European affairs of UPMC (2014-2018) and VP International Development of Sorbonne Université (2018-2021). He also was a member of CNRS National Committee (section 7), the Evaluation committee of INRIA and the LERU Policy Committee.

He is currently coordinating SLICES, the first scientific instrument in Digital Sciences, supported by the EU ESFRI framework and is a co-founder of the Hopcast startup company.

Serge Fdida



A hangulat megmaradt

HSN Lab hangulatképek

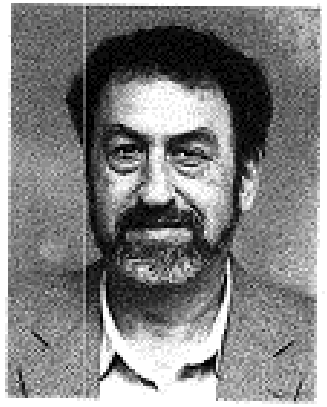
Köszönjük nekik

Akik a HSN Lab születésénél „bábáskodtak”

Gordos Géza
1937 - 2014

Boda Miklós

Henk Tamás
1948 – 2020



Faragó András
1952 - 2024

Halász Edit

Köszönjük a figyelmet!