

NIKOLAOS LAOUTARIS

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APPOINTMENTS

Senior Researcher, Telefonica Research, Barcelona, Jan 2010 – present.

Researcher, Telefonica Research, Barcelona, Sep 2007 – Dec 2009.

Postdoctoral Fellow, Division of Engineering and Applied Sciences, Harvard University, Nov 2006 – Aug 2007.

Marie Curie Postdoctoral Fellow, Computer Science Department, Boston University, May 2005 – Oct 2006.

EDUCATION

Ph.D. Computer Science, University of Athens, Greece, Oct 2004.

M.Sc. Computer Networks, University of Athens, Jun 2001.

B.Sc. Computer Science, University of Athens, Oct 1998.

RESEARCH INTERESTS

System, algorithmic, economic, and performance evaluation aspects of computer networks and distributed systems with emphasis on content distribution, energy consumption, social networks, overlay networks, P2P, and multimedia communications.

HONORS AND AWARDS

Recipient of the *Marie Curie Outgoing International Fellowship* of the European Union for postdoctoral research, Jan 2005.

Best paper award at the 2nd International Workshop on Quality of Future Internet Services, (QoFIS 2001), Coimbra, Portugal, for the paper entitled “Design of Optimal Playout Schedulers for Packet Video Receivers” co-authored with G. Boukeas and I. Stavrakakis.

Excellence in Telecommunications Award from Ericsson Hellas for the B.Sc. thesis “UoA-MCast: A Streaming Application for Stored and Live MPEG-2 video”, 1999.

Award scholarship for the academic years 1996-1997 and 1999-2000 from the Greek State Scholarship’s Foundation.

PUBLICATIONS

REFEREED JOURNALS

- [1] G. Smaragdakis, N. Laoutaris, P. Michiardi, A. Bestavros, J. Byers, and M. Roussopoulos, “Swarming on optimized graphs for n-way broadcast,” *IEEE Transactions on Parallel and Distributed Systems*, to appear.
- [2] G. Smaragdakis, N. Laoutaris, K. Oikonomou, I. Stavrakakis, and A. Bestavros, “Distributed Server Migration for Scalable Internet Service Deployment,” *IEEE/ACM Transactions on Networking*, to appear.
- [3] C. C. Vassilakis, N. Laoutaris, and I. Stavrakakis, “On the impact of playout scheduling on the performance of Peer-to-Peer live streaming,” *Computer Networks*, vol. 53, no. 4, 2009.
- [4] N. Laoutaris, G. Smaragdakis, A. Bestavros, I. Matta, and I. Stavrakakis, “Distributed selfish caching,” *IEEE Transactions on Parallel and Distributed Systems*, vol. 18, no. 10, Oct. 2007.
- [5] N. Laoutaris, O. Telelis, V. Zissimopoulos, and I. Stavrakakis, “Distributed selfish replication,” *IEEE Transactions on Parallel and Distributed Systems*, vol. 17, no. 12, pp. 1401–1413, Dec. 2006.
- [6] G. Smaragdakis, N. Laoutaris, A. Bestavros, I. Matta, and I. Stavrakakis, “Mistreatment-resilient distributed caching,” *Computer Networks*, vol. 51, no. 11, pp. 2917–2937, 2007.
- [7] C. Xenakis, N. Laoutaris, L. Merakos, and I. Stavrakakis, “A generic characterization of the overheads imposed by IPsec and associated cryptographic algorithms,” *Computer Networks*, vol. 50, no. 17, pp. 3225–3241, Dec. 2006.

- [8] N. Laoutaris, H. Che, and I. Stavrakakis, "The LCD interconnection of LRU caches and its analysis," *Performance Evaluation*, vol. 63, no. 7, pp. 609–634, July 2006.
- [9] N. Laoutaris, V. Zissimopoulos, and I. Stavrakakis, "On the optimization of storage capacity allocation for content distribution," *Computer Networks*, vol. 47, no. 3, pp. 409–428, Feb. 2005.
- [10] E. Balafoutis, A. Panagakis, N. Laoutaris, and I. Stavrakakis, "Study of the impact of replacement granularity and associated strategies on video caching," *Cluster Computing*, vol. 8, no. 1, pp. 89–100, Jan. 2005.
- [11] N. Laoutaris, V. Zissimopoulos, and I. Stavrakakis, "Joint object placement and node dimensioning for internet content distribution," *Information Processing Letters*, vol. 89, no. 6, pp. 273–279, Mar. 2004.
- [12] N. Laoutaris, B. V. Houdt, and I. Stavrakakis, "Optimization of a packet video receiver under different levels of delay jitter: An analytical approach," *Performance Evaluation*, vol. 55, no. 3-4, pp. 251–275, Feb. 2004.
- [13] N. Laoutaris and I. Stavrakakis, "An analytical design of optimal playout schedulers for packet video receivers," *Computer Communications*, vol. 26, no. 4, pp. 294–303, Mar. 2003.
- [14] —, "Intrastream synchronization for continuous media streams: A survey of playout schedulers," *IEEE Network Magazine*, vol. 16, no. 3, May 2002.

REFEREED CONFERENCES AND WORKSHOPS

- [15] J.-M. Pujol, V. Erramilli, G. Siganos, X. Yang, N. Laoutaris, P. Chhabra, and P. Rodriguez, "The Little Engine(s) that Could: Scaling Online Social Networks," in *Proc. of ACM SIGCOMM'10*, 2010.
- [16] P. Chhabra, N. Laoutaris, P. Rodriguez, and R. Sundaram, "Home Is Where The (Fast) Internet Is: Flat-rate Compatible Incentives For Reducing Peak Load," in *Proc. of ACM SIGCOMM Workshop on Home Networks*, 2010.
- [17] V. Valancius, N. Laoutaris, L. Massoulie, C. Diot, and P. Rodriguez, "Greening the Internet with Nano Data Centers," in *Proc. of ACM CoNEXT'09*, 2009.
- [18] N. Laoutaris, G. Smaragdakis, P. Rodriguez, and R. Sundaram, "Delay Tolerant Bulk Data Transfers on the Internet," in *Proc. of ACM SIGMETRICS'09*, 2009.
- [19] N. Laoutaris, D. Carra, P. Michiardi, "Uplink Allocation Beyond Choke/Unchoke or How to Divide and Conquer Best," in *Proc. of ACM CoNEXT'08*, 2008.
- [20] G. Smaragdakis, V. Lekakis, N. Laoutaris, A. Bestavros, J.W. Byers, M. Roussopoulos, "EGOIST: Overlay Routing using Selfish Neighbor Selection," in *Proc. of ACM CoNEXT'08*, 2008.
- [21] N. Laoutaris, P. Rodriguez, "Good Things Come to Those Who (Can) Wait or How to Handle Delay Tolerant Traffic and Make Peace on the Internet," in *Proc. of ACM HotNets-VII*, 2008.
- [22] N. Laoutaris, L. Poplawski, R. Rajaraman, R. Sundaram, and S.-H. Teng, "Bounded Budget Connection (BBC) games or How to make friends and influence people, on a budget," in *Proc. of ACM PODC '08*, 2008.
- [23] G. Smaragdakis, N. Laoutaris, P. Michiardi, A. Bestavros, J. Byers, and M. Roussopoulos, "Swarming on optimized graphs for n-way broadcast," in *Proc. of IEEE INFOCOM '08*, Phoenix, AZ, April 2008.
- [24] C. C. Vassilakis, N. Laoutaris, and I. Stavrakakis, "The impact of playout policy on the performance of P2P live streaming," in *Proc. of SPIE/ACM MMCN '08*, San Jose, California, Jan 2008.
- [25] N. Laoutaris, G. Smaragdakis, A. Bestavros, and J. Byers, "Implications of selfish neighbor selection in overlay networks," in *Proc. of IEEE INFOCOM '07*, Anchorage, AK, May 2007.
- [26] N. Laoutaris, G. Smaragdakis, K. Oikonomou, I. Stavrakakis, and A. Bestavros, "Distributed placement of service facilities in large-scale networks," in *Proc. of IEEE INFOCOM '07*, Anchorage, AK, May 2007.
- [27] N. Laoutaris, G. Zervas, A. Bestavros, and G. Kollios, "The cache inference problem and its application to content and request routing," in *Proc. of IEEE INFOCOM '07*, Anchorage, AK, May 2007.
- [28] N. Laoutaris, G. Smaragdakis, A. Bestavros, and I. Stavrakakis, "Mistreatment in distributed caching groups: Causes and implications," in *Proc. of IEEE INFOCOM '06*, Barcelona, Spain, 2006.
- [29] G. Smaragdakis, N. Laoutaris, I. Matta, A. Bestavros, and I. Stavrakakis, "A feedback control approach to mitigating mistreatment in distributed caching groups," in *Proc. of IFIP Networking '06*, Coimbra, Portugal, May 2006.

- [30] N. Kranitis, A. Merentitis, N. Laoutaris, G. Theodorou, A. Paschalis, D. Gizopoulos, and C. Halatsis, "Optimal periodic testing of intermittent faults in embedded pipelined processor applications," in *Proc. of DATE '06*, Munich, Germany, Mar. 2006.
- [31] N. Laoutaris, O. Telelis, V. Zissimopoulos, and I. Stavrakakis, "Local utility aware content replication," in *Proc. of IFIP Networking '05*, Waterloo, Canada, May 2005.
- [32] N. Laoutaris, V. Zissimopoulos, and I. Stavrakakis, "Storage capacity allocation algorithms for hierarchical content distribution," in *Proc. of IFIP Net-Con '04*, Palma de Mallorca, Spain, Nov. 2004.
- [33] N. Laoutaris, A. Panagakis, and I. Stavrakakis, "Content distribution through autonomic content and storage management," in *Proc. WAC '04*, Berlin, German, Oct. 2004.
- [34] N. Laoutaris, S. Syntila, and I. Stavrakakis, "Meta algorithms for hierarchical web caches," in *Proc. IEEE IPCCC '04*, Phoenix, Arizona, Apr. 2004.
- [35] E. Balafoutis, A. Panagakis, N. Laoutaris, and I. Stavrakakis, "The impact of replacement granularity on video caching," in *Proc. IFIP Networking '02*, Pisa, Italy, May 2002.
- [36] N. Laoutaris, G. Boukeas, and I. Stavrakakis, "Design of optimal playout schedulers for packet video receivers," in *Proc. QofIS '01*, Coimbra, Portugal, Sept. 2001.
- [37] N. Laoutaris and I. Stavrakakis, "Adaptive playout strategies for packet video receivers with finite buffer capacity," in *Proc. IEEE ICC '01*, Helsinki, Finland, June 2001.
- [38] N. Karelos, N. Laoutaris, P. Balaouras, and I. Stavrakakis, "Endsystem performance issues for continuous media streaming applications," in *Proc. ATM & IP*, Ilkley, West Yorkshire, U.K, July 2000.

EDITORIALS/TECHNICAL REPORTS/UNPUBLISHED

- [39] N. Laoutaris, P. Rodriguez, and L. Massoulie, "ECHOS: edge capacity hosting overlays of nano data centers," *ACM SIGCOMM Comput. Commun. Rev.*, vol. 38, no. 1, pp. 51–54, Jan. 2008.
- [40] N. Laoutaris, "A closed-form method for LRU replacement under generalized power-law demand," 2007, arXiv:0705.1970v1 [cs.DS].
- [41] —, "The breakdown of the object placement problem: Walking the path from NP-hard to a closed-form solution," 2006.

TEACHING / STUDENT SUPERVISION

Internet Content Distribution "PMS 523 - Advanced Network Technologies" of the Dept. Informatics & Telecommunications of the University of Athens. Topics: ISP inter connection economics, content distribution technologies, case study on BitTorrent, delay tolerant bulk transfers. Spring 2010.

Lecturer for the graduate course "PMS 523 - Advanced Network Technologies" of the Dept. Informatics & Telecommunications of the University of Athens. Topics: continuous media streaming on the Internet, web caching, and content distribution networks. From 2002 to 2005.

Lecturer for the graduate course "PMS 524 - Modelling and Performance Evaluation of Networks" of the Dept. Informatics & Telecommunications of the University of Athens. Topics: Markov decision theory and application, analysis of replacement algorithms. From 2002 to 2005.

Co-supervision of Ph.D. and M.Sc. students at Boston University and the University of Athens.

PROFESSIONAL SERVICE

Associate Editor, COMPUTER NETWORKS, Elsevier.

TPC member: CoNEXT'10, CoNEXT'09, INFOCOM'11, INFOCOM'10, INFOCOM'09, IPDPS'10, MMCN'09, NetDB'08, LANMAN'08, NETCOOP'08, ComP2P'08, COPS'08.

Reviewer for several journals and conferences including: IEEE/ACM Transactions on Networking, IEEE Transactions on Parallel and Distributed Systems, IEEE Journal on Selected Areas in Communications, IEEE

Transactions on Knowledge and Data Engineering, IEEE Transactions on Multimedia, ACM SIGCOMM Computer Communications Review, IEEE Network Magazine, IEEE Communications Letters, Computer Communications Journal, Journal of Parallel and Distributed Computing, Cluster Computing Journal, Journal of Systems and Software, Computers and Operations Research Journal, Annals of Operations Research Journal, IEEE INFOCOM, IEEE ICNP, IEEE ICCCN, IFIP Networking, IFIP Net-Con, QofIS, CNDS, PWC, ICON.

SELECTED INVITED TALKS

“Deep diving into BitTorrent Locality”: EPFL, Dec 2009; TU-Berlin/T-Labs, Jun 2009; Institut Eurecom, May 2009.

“Delay Tolerant Bulk Data Transfers on the Internet, or how to book some terabytes on red-eye bandwidth”: Yahoo! Research, Barcelona, Jun 2010; Information Theory Workshop, Cairo Jan 2010; IETF-75, Stockholm, Jul 2009; University of Athens, Mar 2009; Univ. Carlos III de Madrid, Dec 2008; FORTH/U. Crete, Oct 2008; Northeastern University, Aug 2008; Boston University, Aug 2008.

“Selfish Neighbor Selection: Formulation, Analysis, and Implications for Overlay Routing and P2P File Sharing”: Northeastern University, Dec 2007; Intel Research, Apr 2007; Microsoft Research, Apr 2007; NTUA, Mar 2007; Thomson Research, Mar 2007; FORTH/U. Crete, Feb 2007; AUEB, Feb 2007.

“Storage Capacity Allocation & Distributed Selfish Replication/Caching for Content Networks”: University of Ioannina, Jan 2006, FORTH/U. Crete, Jan 2006.