CURRICULUM VITAE

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EDUCATION:

Ph.D. University of Maryland, Computer Science (Sep. 1986)
M. S. Purdue University, Computer Science (December 1982)
M. S. Ohio University, Mathematics (May 1980)
B. Sc. University of Sri Lanka, Mathematics (June 1977)

HONORS:

McBride Professor of Computer Science, since June 1997
 The first endowed chair in sciences ever awarded at Georgetown university;
 life time appointment.

PROFESSIONAL EXPERIENCE:

Georgetown University, Washington D.C.
Chairman, Department of Computer Science, Sep. 1997 - June 2001
Professor, Department of Computer Science, June 1996
Associate Professor, Department of Computer Science, June 1992 - May 96
Assistant Professor, Department of Computer Science, Sep. 1986 - May 92

University of Maryland, College Park, Maryland
Research Assistant/Instructor, Computer Science, Jan. 1983 - August 1986

Purdue University, West Lafayette, Indiana
Teaching Assistant, Computer Science Department, Sep. 1980 - Dec. 1982

Ohio University, Athens, Ohio
Teaching Assistant, Sep. 1978 - May 1980

University of Sri Lanka, Colombo, Sri Lanka
Assistant Lecturer, Dept. of Mathematics, May 1977 - Sep. 1978
Programmer, Statistical Unit, May 1977 -Sep. 1978

CONSULTING:

IBM, Research Triangle, NC 27709, January 1991 to July 1991

Reports detailing the performance issues of both the 4 and 16 Mb token rings.

Analyzed the performance issues of the session level protocols.

Research to develop a Finite State Machine (FSM) representation of performance aspects of the implementations of both IBM token ring and session level protocols using FSM theory.

IBM, Research Triangle, NC 27709, January 94 to July 94

Reports detailing the performance issues of Ethernet and ATM. These reports focused on practical issues which impact acceptance of these technologies and their manageability.

A complete FSM description including algorithms and heuristics utilizing ICA technology for the analysis and monitoring of Ethernet environments.

A complete FSM description including algorithms and heuristics utilizing ICA technology for the analysis and and monitoring of ATM environments.

Bell-Atlantic, Fairland, MD, May 1996-August 1996

Reports detailing the performance issues of using X-windows for managing intra-communication between departments across heterogeneous networks

PATENTS:

Monitoring ATM networks for burstiness using cell full or cell empty latency with minimum information; U.S 05629927

A system and method monitors and controls an asynchronous transfer mode (ATM) network having at least two ATM stations. An event driven interface is coupled to the ATM network for monitoring the selected ranges of contiguous non-empty cells and of contiguous empty cells communicated between the ATM stations and outputting count values for selected ranges of contiguous non-empty cells and of contiguous empty cells. An analysis computer is coupled to the output of the event driven interface, for analyzing the count values and outputting control signals. The control signals are used to reorder or change the time of transmission of data at a transmitting ATM station on the communications link, in response to the control signals.

Monitoring Ethernet LANs using latency with minimum information; U.S. 05802041

A system and method monitor and control an Ethernet local area network, by monitoring bit gap distances between adjacent frames communicated by stations on the local area network. By analyzing the number of events for pre-selected

bit gap distances, the network traffic characteristics can be characterized and interconnection paths between stations in the network can be altered.

Methods and Apparatus for Dynamic Bandwidth Adjustment; U.S. 7116682.

A configuration of a communications device, and a method for its operation are provided for automatically and dynamically adjusting bandwidth of a communications channel. The device and method operate to detect events indicating anticipated changes in bandwidth requirements of the communications channel. Such events may be browser or bandwidth related events, for example, that indicate a forthcoming requirement for increased or decreased bandwidth. The device and method then can extract a bandwidth determination factor if available and then calculate a new value for a bandwidth setting of the communications channel in response to detecting such an event and can adjust a bandwidth characteristic of the communications channel according to the new value of the bandwidth setting such that communications channel can accommodate the anticipated change(s) in the bandwidth requirement. The invention can operate in wireless and non-wireless communications systems to cause bandwidth to be adjusted to closely track usage requirements of the communications channel. U.S. 7116682.

Methods and apparatus for allocating resources in a communications system; U.S. 7433311.

The invention provides a system including methods and apparatus that adjust usage of one or more resources of a data communications channel. The system can negotiate a current resource setting for usage of the resource of the communications channel and can perform communications on the communications channel using the resource. The resource can be, for example, a bandwidth setting of the communications channel. Periodically, the system can renegotiate a new value for the current resource setting upon detecting a negotiation event during performance of communications on the communications channel using the resource. One such negotiation event is an indication that an accrued usage cost of the resource of the communications channel substantially equals or exceeds a cost to renegotiate the current resource setting. Another negotiation event indicates that an actual resource setting of the communications channel substantially equals or exceeds the current resource setting for the communications channel. Another negotiation event indicates that a data communications device using the bandwidth setting of the communications channel has requested to negotiate a new value for the current resource setting of the communications channel.

Web Tools

sequerome.georgetown.edu

instaseq.georgetown.edu

GRANTS:

AT&T - For testing and implementing GEOPLEX networks in Linux (50k). 1998

Red Hat Linux - For Teaching undergraduates programming under the Linux O/S (30k). 1999

PUBLICATIONS IN REFEREED JOURNALS:

On the Inference of Approximate Programs, with C.H. Smith, Theoretical Computer Science, Vol 77, pp. 249-266, Jan 1990.

Trade-offs Among Parameters Affecting Inductive Inference, with R. Freivalds and C.H. Smith, Information and Computation, Vol 82, pp. 323-349, September 1989.

Approximate Learning with Multiple Machines, November 1992, Vol 17, pp. 235-251, Fundamenta Informaticae.

Learning Programs With an Easy to Calculate Set of Errors, with W.I. Gasarch, C.H. Smith and R.K. Sitaraman, Fundamenta Informaticae, Vol. 16, No. 3-4 p355-370, 1992.

The Power of Probabilism in Popperian FINte learning, with R. Daley and B. Kalyana-sundaram, Vol 6, 1994, pp. 41-62, Journal on Experimental and Theoretical Artificial Intelligence.

Breaking the Probability 1/2 Barrier in FIN-type Learning, with R. Daley and B. Kalyanasundaram, Journal on Computer and System Sciences, Vol 50, No 3, pp. 574-599, June 1995.

On Learning Multiple Concepts in Parallel, with E. Kinber, C. H. Smith and R. Wiehagen, JCSS, Vol 50, No 1, pp. 41-52, February 1995. Journal on Computer and System Sciences.

Finite Identification of Functions by Teams with Success Ratio 1/2 and above, with Jain and Sharma, Journal of Information and Computation, Vol 121, No 2, pp. 201-213, September 1995.

Classification via Information, with W. Gasarch, M.Pleszkock and F. Stephan, Annals of Math and Artificial Intelligence 23(1-2):147-168(1998).

Asking Questions Versus Verifiability, with W.I. Gasarch, Fundamenta Informaticae 30(1):1-9(1997).

Scheduling Broadcasts in Wireless Networks, B. Kalyanasundaram and K.R. Pruhs, Special Issue of Journal of Scheduling devoted to ESA'2000 and APPROX'2000.

Unlocking the Advantage of Dynamic Service Selection and Pricing, with Bala Kalyanasundaram, John Waclawsky. ACM Transactions on Theory of Computer Systems, Vol. 38 No.4 p393-410 (2005).

Web-based interface facilitating sequence-to-structure analysis of BLAST alignment reports, with Ganesan N, Bennett NF, Pattabiraman N, Squier R, Kalyanasundaram B. Biotechniques. 2005 Aug;39(2):186, 188.

A Bigger BLAST, with N. Ganesan, N. F. Bennett, B. Kalyanasundaram, N. Pattabiraman, and R. Squier), appeared in **Science,** Vol 309, 2005.

Capabilities of Thoughtful Machines, with Bala Kalyanasundaram, Fundamenta Informaticae, 74(2-3): 329-340 (2006).

Taming Teams with Mind Changes, with Bala Kalyanasundaram, Journal of Computer and System Sciences, Vol 74 (4), June 2008, pp. 512-526.

Temporal cytokine profiling of Francisella tularensis-infected Human Peripheral Blood Mononuclear Cells Journal of Microbiology, Immunity and Infection, with C. M. Paranavitana, et.al. Jun 2008 (41)(3):192-199.

Transcriptional Profiling of Francisella Tularensis Infected Peripheral Blood Mononuclear Cells: A predictive for Tularemia with C.M. Paranavitana, et, al. FEMS Immunol Med MicroBiol. Oct 2008; (54)(1)92-103.
Learning Behaviours of Functions, with Bala Kalyanasundaram, Fundamenta Informaticae, vol 98, pp 183-198, 2010

A Near Optimal Periodic Transmission Schedule in Bounded Degree Wireless Sensor Network, with Bala Kalyanasundaram. Theory of Computing Systems Volume 51, Issue 4 (2012), Page 474-491

Learning Behavior of Functions with Teams with Bala kalyanasundaram, in Fundamenta Informaticae, Vol 124, Number 3/2013, pp 251-270.

Transcriptional profiling the recall responses to Francisella live vaccine strain in journal Pathogens and Disease; Jan 23, 2014, with Paranavitana et.al.

Support Profile Leads to Pattern amoung Natural Languages with Anfal ALGharabally and Bala kalyanasundaram, in International Journal of Languages, Literature and Linguistics, Vol 2, No.4, December 2016, pp 185-189.

REFEREED CONFERENCE PUBLICATIONS:

On the Inference of Approximate Programs, 1985 Conference on Information Sciences and systems, Baltimore, MD, March 1985.

On the Inductive Inference of Programs Approximately Computing the Desired Function, Proceedings of the International Workshop on Analogical and Inductive Inference, with C.H. Smith, Wendisch–Rietz, DDR, October 1986.

Learning Programs with an Easy to Calculate Set of Errors, with W.I. Gasarch, C.H. Smith and R.K. Sitaraman, Proceedings of the First Workshop on Computational Learning Theory, pp. 242-250, Aug 1988.

Inductive Inference: an Abstract Approach, with J.C. Cherniavsky and R. Statman, Proceedings of the First Workshop on Computational Learning Theory, pp. 251-266, Aug 1988.

Inductive Inference with Bounded Number of Mind Changes, Proceedings of the Second Annual Workshop on Computational Learning Theory, pp. 200-213, Aug 1989.

Learning Programs with an Easy to Calculate Set of Errors, with W.I. Gasarch, C.H. Smith and R.K. Sitaraman, Proceedings of the International Workshop on Analogical and Inductive Inference, pp. 124-137, GDR, October 1989.

Relations Between Probabilistic and Team One-Shot Learners, with Robert Daley, Leonard Pitt and Todd Will, Proceedings of the Fourth Annual Workshop on Computational Learning Theory, pp. 228-239 Aug 1991.

Breaking the Probability 1/2 Barrier in FIN-Type Learning, with Robert Daley and Bala Kalyanasundaram, Proceedings of the Fifth Annual Workshop on Computational Learning Theory, pp. 203-217, July 1992.

The Power of Probabilism in Popperian Finite Learning, with Robert Daley and Bala Kalyanasundaram, Proceedings of the International Workshop in Analogical and Inductive Inference, Germany, pp. 151-169, October 1992.

Asking Questions Versus Verifiability, with W.I. Gasarch, Proceedings of the International Workshop on Analogical and Inductive Inference, Germany, pp. 197-213, October 1992.

Capabilities of Fallible FINite Learning, with R. Daley and B. Kalyanasundaram, Proceedings of the Sixth Annual Workshop on Computational Learning Theory, pp. 199-208, July 1993.

On Learning Multiple Concepts in Parallel, with E. Kinber, C. H. Smith and R. Wiehagen, Proceedings of the Sixth Annual Workshop on Computational Learning Theory, pp. 175-181, July 1993.

Ring Protocol Dynamics , with John G. Waclawsky, Proceedings of the Third International Conference on Systems Integration (ICSI' 94), Sau Paulo, Brazil, pp. 732-741, August 1994.

Classification Using Information, with W.I. Gasarch and Mark G. Pleszkock, Proceedings of the Fifth International Workshop on Algorithmic Learning Theory, Germany, pp. 290-300, October 1994.

Dynamics of Token Ring Protocol , with John G. Waclawsky, Proceedings of the International Conference on Network Protocols (ICNP-94), Boston, October 1994.

Simulating Teams with Many Conjectures, with Bala Kalyanasundaram, Proceedings of the Sixth International Workshop on Algorithmic Learning Theory, Japan, October 1995.

Scheduling Broadcasts in Wireless Networks, with Bala Kalyanasundaram and Kirk Pruhs, Proceeding of the 8th Annual European Symposium on Alogorithms, Sep 5-8, 1999, Saarbruken, Germany.

Dynamic Pricing Schemes for Multilevel Service Providers, August 2001. with Bala Kalyanasundaram. Proceedings of Second International Conference on Advances in Infrastructure for E-Business, E-Science, and E-Education on the Internet, Italy.

Effects of Migration and Loss of Channels in Variable Data Rate Environments, in Models and Algorithms for Planning and Scheduling Problems, Sixth work shop, March 30, 2003, Aussosi, France, with Bala Kalyanasundaram.

Unlocking the Advantages of Dynamic Selection and Pricing, Fifth Conference on Algorithms and Complexity, May 28-30, 2003, Rome Italy, with B. Kalyanasundaran and J.G. Waclawsky.

Fairness to All While Downsizing, Thirty first International Colloquium on Automata, Languages and Programming, July 12-16, 2004, Turku, Finland.

Bioinformatics Data tools- A prelude to metabolic profiling, with Ganesahn Natarajan and Bala kalyanasundaran, Proceedings of pacific Symposium on Biocomputing, 12:127-132 (2007).

Transcriptional Profiling of Francisella Tularensis Infected Peripheral Blood Mononuclear Cells: A predictioce for Tularemia Poster presented at Biodefense 2007 meeting in Philadelphia, PA with Chrysanthi Paranavitana, et.al.

Predicting Properties Using Smiles Representation, poster presentation, with Bala kalyanasundaram and Natarajan Ganesahn,Pacific Symposium on Biocomputing (PSB) 2008 Hawaii, USA.

Analysis of a Simple Randomized Protocol to Establish Communication in Bounded Degree Sensor Networks with Bala Kalyanasundaram. International Conference on Distributed Computing and Networking, 2011.

Establishing A Periodic Transmission Schedule in Wireless Sensor Network for Non-Uniform Transmission Case has been accepted to MAPSP 2013, 23-28 June, 11th Workshop on Models and Algorithms for Planning and Scheduling Problems.

Scheduling messages to detect patterns continuously on a grid sensor network with Bala kalyanasundaram, 12th Workshop on Models and Algorithms for Planning and Scheduling Problems. MAPSP 8th-12th June 2015.

Support Profile Leads To A Pattern Among Natural Languages. with Anfal Algharabally and Bala kalyanasundaram, 6th International Conference on Languages, Literature and Linguistics (ICLLL 2016), Sydney, Australia.

k-letter Problem: Application, Approximation and Generalization. with Anfal Algharabally and Bala kalyanasundaram, The 13th Workshop on Models and Algorithms for Planning and Scheduling Problems (MAPSP 2017), Seeon Abbey Germany, 12-16 June 2017.

Non-Destructive Monitoring by a Sensor Network: Complexity of an Inverse Problem with Balasubramanian Kalyanasundaram, (MAPSP 2019), Renesse, Netherlands. 2-7 June 2019.

TECNICAL REPORTS:

On the Inference of Approximate Explanations, with C.H Smith, Technical Report TR-1427, Feb. 1985, University of Maryland.

The Inductive Inference of Programs with Infinitely Many Sparsely Distributed Errors, with C.H. Smith, Recursive Function Theory Newsletter, No. 35, June 1986, Item 358, pp. 1–2

On Learning Multiple Concepts in Parallel, with E. Kinber, C. H. Smith and R. Wiehagen, GOSLER Report, BMFT-Verbundprojekt, December 1993.

Classification Using Information, with W.I. Gasarch and M.G. Pleszkoch, Lecture Notes in Artificial Intelligence (961), Springer, pages 162-173, GOSLER Final Report, June 1995.

PUBLICATIONS IN PREPARATION:

Novel genes associated with memory responses in F.tularensis vaccinated volunteers, in preparation, with C.M. Paranavitana, et, al.

TALKS GIVEN:

On the Inductive Inference of Program with Anomalies, Capitol Area Theory Seminar, April 1986.

On the Inductive Inference of Program with Anomalies, University of Houston, Computer Science Department, April 1986.

On the Inductive Inference of Program with Anomalies, University of Maryland Baltimore county, Computer Science Department, May 1986.

Learning Programs with an Easy to Calculate Set of Errors, First Workshop on Computational Learning Theory, Boston, August 1988.

Inductive Inference with Bounded Number of Mind Changes, Second Annual Workshop on Computational Learning Theory, Santa Cruz, Aug 1989.

Learning Programs with an Easy to Calculate Set of Errors, International Workshop in Analogical and Inductive Inference, GDR, October 1989.

The Power of Probabilism in Popperian Finite Learning, International Workshop in Analogical and Inductive Inference, Germany, October 1992.

Query Learning vs Inference Classes, International Workshop in Analogical and Inductive Inference, Germany, October 1992.

Ring Protocol Dynamics , Third International Conference on Systems Integration (ICSI' 94), Sau Paulo, Brazil, August 1994.

Team Learning, Department of Computer Science, University of Federal De Vicosa, Brazil.

Classification Using Information, Fifth International Workshop on Algorithmic Learning Theory, Germany, October 1994.

Simulating Teams with Many Conjectures, Sixth International Workshop on Algorithmic Learning Theory, Japan, October 1995.

Scheduling Broadcasts in Wireless Networks, 8th Annual European Symposium on Alogorithms, Sep 8, 2000. Saarbruken, Germany.

Fairness to All While Downsizing, Thirty first International Colloquium on Automata, Languages and Programming, July 12-16, 2004, Turku, Finland.

Analysis of A Simple Randomized Protocol to Establish Communication in Bounded Degree Sensor Networks, International Conference on Distributed and Computer networks, 2011, January 3-6, Bangalore, India.

Establishing Communication Between Adjacent Sensors Distributed Randomly On a Line, Kuwait Conference on e-Services and e-Systems April 5-7, 2011, Kuwait.

The Universal Support Hypothesis for Natural Languages, 12th Annual Vidya Jyothi Professor VK Samaranayake Memorial oration, Sep. 2, 2019, Colombo, Sri Lanka.

Establishing Communication, Non-Destructive Monitoring and the complexity of an Inverse Problem in a Sensor Network , Keynote Speaker, International Conference on Advances in ICT for Emerging Regions, Sep. 3-4, 2019, Colombo, Sri Lanka.

MAJOR SERVICES:

Faculty Representative for *Banner Blue and Gray Project*, aprroximately $20 Million, from Dec 2006.

Chairman, Department of Computer Science, Sept 1997-June 2001.

Member of the Georgetown University undergraduate transfer admission committee, 1993, 1994.

Member of the Georgetown University undergraduate freshman admission committee, 1995.

Consultant for the acquisition of computer equipment for the department of computer science.

In charge of evaluating candidates for advanced placement in the department of computer science.

Coordinator for the department of computer science programming team.

Reviewed several publications and proposal for journal and National Science Foundation.

Coordinator for a panel to discuss artificial intelligence in conjunction with a team of teachers sponsored by the Iceland Association for the Teaching of Psychology and USIA.

RESEARCH INTERESTS:

Bioinformatics, Computational Chemistry, Computaional Linguistics, Wireless Networking, Online Algorithms, Learning Theory, Computer Education.

TEACHING:

Courses taught: Algorithm Analysis, Automata Theory, Computer Graphics, Wireless Computing, Math Methods, Cryptography, Compiler Construction, C/C++, Java, Codes & Ciphers, Data Structures, Programming Languages, Theory of Computing, Programming Hand Held Devices; teaching ability not limited to these courses.

PERSONAL:

US citizen, Wife Ph.D in Microbiology, One daughter, (JD, LLM).

REFERENCES:

Upon request.