

Curriculum Vitæ  
**GOPAL GUPTA**  
**April 2024**

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## AREAS OF INTEREST

- **Artificial Intelligence:** Knowledge Representation, Common Sense Reasoning, Explainable Machine Learning.
- **Programming Languages:** Implementation and Semantics, Logic Programming, Constraint Programming, Applications, Compile-time Analysis.
- **Software Engineering:** Software Verification, Domain Specific Languages, Executable Specifications, Agent/Web/Service based Computing, Interoperability.
- **Parallel and Distributed Processing:** High Performance AI and Logic Programming Systems, Automatic Parallelization and Parallelizing Compilers, Parallel Architectures, Applications.
- **Assistive Technology:** Aural Navigation of the Web, Making Math Accessible to Visually Impaired

## EDUCATION

Ph.D. Computer Science, 1991, University of North Carolina at Chapel Hill. Advisor: Dr. Bharat Jayaraman. My thesis was published by Kluwer Academic Publishers.

M.S. Computer Science, 1987, University of North Carolina at Chapel Hill.

B.Tech. Computer Science, May 1985, Indian Institute of Technology, Kanpur, India.

## PROFESSIONAL EXPERIENCE

9/11 – present Professor, Dept of Computer Science, UT Dallas.

9/19 – present Co-Director, Center for Applied AI and Machine Learning (CAIML).

9/20 – present Director, Executive Masters in Software Engineering Program.

8/09 – 06/20 Department Head and Erik Jonsson Chaired Professor, Department of Computer Science, UT Dallas.

3/08 – 12/16: Chief Technology Officer and Co-founder: Interoperate.biz, Inc.

9/04 – 8/09: Associate Department Head, Department of Computer Science, UT Dallas.

6/01 – 6/12: Founder and Chief Technology Officer: LogiSoft Solutions LLC.

9/02 – 9/11: Professor, Department of Computer Science, UT Dallas.

9/00 – 8/02: Associate Professor, Department of Computer Science, UT Dallas.

7/97 – 8/00: Associate Professor, Department of Computer Science, NMSU. Director, Laboratory for Logic, Databases, and Advanced Programming.

1/92 – 6/97: Assistant Professor, Department of Computer Science, NMSU. Co-founder and Director, Laboratory for Logic, Databases, and Advanced Programming.

11/89 – 12/91: Member of Research Staff, Parallel Logic Programming Systems Group, Advanced Computing Research Center, University of Bristol, UK, Group Leader: David H. D. Warren.

8/85 – 10/89: Research/Teaching Assistant, UNC Chapel Hill.

5/85 – 7/85: Programmer, Uttar Pradesh Development System Corporation (India).

## AWARDS AND HONORS

- Chair, Jury for 2023 International Alain Colmerauer Prize.
- Member of the Jury for the 50-years of Prolog Alain Colmerauer Prize, 2022
- Test-of-time award, International Conference on Logic Programming 2016, for the paper titled “Coinductive Logic Programming” published in ICLP 2006.
- Runner up for best Logic Programming Paper, PADL 2024.
- Runner up for best Logic Programming Paper, PADL 2020.
- Best Logic Programming Paper, PADL 2019.
- Member, Sigma Xi (scientific research honor society)
- President, International Association for Logic Programming, 2010 – 2014
- Computer science outstanding teacher of the year, University of Texas at Dallas, 2008.
- Jonsson School outstanding service award, University of Texas at Dallas, 2005 (included \$25,000 internal research grant).
- Best paper award. European Conferences on Web Services 2005. With S. Kona, A. Bansal, L. Simon, T. Hite.
- Most practical paper award. 6th International Conference on Practical Aspects of Declarative Languages. 2004. With H-F Guo.
- Best paper. Software Verification and Validation Workshop. 2003. With Q. Wang.
- Appointed as area editor of the Journal, Theory and Practice of Logic Programming.
- Member of the executive committee, Association for Logic Programming, 2004-2008. Association for Logic Programming has about 500-600 members worldwide. It sponsors international logic programming conferences and publishes the Journal of Logic Programming.
- Member of the executive committee, European Association for Programming Languages and Systems.
- Junior Faculty Enhancement Award in Computer Sciences, Oak Ridge Associated Universities, 1992 (10 awards out of 128 competitors).
- Graduate School Fellowship, University of North Carolina at Chapel Hill, 1985-86.
- Recipient of the “National Talent Search Scholarship” from the Government of India, 1981-1985 (awarded then to approximately 150 students every year nationwide).
- Graduated with honors and 14th position among approximately 500,000 students in

state-wide High School (12th grade) examination in India.

- 16th rank nationwide among approximately 100,000 examinees in the entrance examination of the Indian Institutes of Technology (IITs).

## AWARDS TO MY STUDENTS

- UT Dallas School of Engineering and Computer Science, Best Dissertation Award to Kinjal Basu, 2022.
- Selection to one of 9 teams in 2019 Amazon Alexa Socialbot Competition out of 100s of applicants: Kinjal Basu, Huaduo Wang, Fang Li, Sarat Varanasi.
- International Conference on Logic Programming 10 year Test-of-time award to students Luke Simon, Ajay Mallya, and Ajay Bansal at ICLP 2016.
- Third place, Undergraduate Computer Science Research Competition, UT Dallas, to students Arman Sobhi
- Google Summer of Code competition, 2008. Suraj Walgudhe.
- Best Student Paper Award, International Conference on Logic Programming, 2005. Ajay Mallya (Ph.D. 2006).
- UTD Jonsson School Best Dissertation Award, Runner Up, 2006-2007. Luke Simon (Ph.D. 2006).
- Various UTD Jonsson School Research Excellence Awards in Graduate Student Research Competitions: R. Venkitaraman (MS 2005), R. Reguramalingam (MS 2005), S. Sunder Raman (MS 2005), Aanchal Jain (MS 2006), S. Kona (Ph.D. 2007).
- Best presentation award, 1999, Larry King; Workshop on High Assurance Systems; organized by Sandia National Labs.
- Nebraska NSF Epscor Research Initiation Award, 2002, Hai-Feng Guo (Ph.D. 2000). and Saikiran Srirangapalli, 2016.
- NSF CAREER Award, 1999, Enrico Pontelli (Ph.D. 1997).

## SELECTED TEACHING RELATED ACTIVITIES

1. Co-PI in a large NSF grant at New Mexico State University to redesign the Freshmen programming curriculum. 1992-1996.
2. Co-PI in RIMI grants from NSF to increase number of minority Ph.D.s (several Hispanic graduate students recruited and graduated). 1993-1997.
3. Co-PI in a Research Infrastructure grant from NSF that included a summer camp for Native Americans at New Mexico State University. Started in 1998, these summer camps continue even today.
4. Program Head, BS Computer Science Program and BS Software Engg Programs for ABET and SACS accreditation.
5. Co-PI in NSF CSEMS grant for scholarship to Undergraduate CS students. 2002-2006.

6. PI/Co-PI in three Dept. of Education GAANN awards (two awards were at New Mexico State University which produced a number of Ph.D.s including two women [including one Hispanic woman Ph.D.]).
7. Organizer, three summer schools in computational logic to increase number of students interested in doing research in logic programming (1999, 2004, 2014).
8. Chair of the Information Assurance Certificate programs at UTD's CyberSecurity and Emergency Preparedness Institute. 2005-2010.
9. Co-PI in NSF GK-12 grant to engage middle school students in computer science. 2008-2013. Also, responsible for conceiving the project and assembling the team that wrote the winning proposal.
10. Co-PI in an NSF CCLI grant (PI: Eric Wong)
11. Significant work in making Mathematics and Web accessible to blind students/individuals.

## RESEARCH GRANTS

Received research funding as a PI or a co-PI of more than \$17 Million. Continuously funded as a PI/Co-PI in one or more NSF grants from the beginning of my academic career. Two companies have been founded based on my inventions: first one received SBIR awards totaling about \$600,000, the second received investment of \$1,000,000 from Texas Emerging Technology Funds.

## CURRENT GRANTS

1. PI, Extracting Information from Medical Records Efficiently and Reliably. **Corro-Health, Inc.**, VA, USA. \$75,000. 2024.
2. PI, Design and Implementation of a Smart Pavement Management System. **Nippon Central Expressway Co. (NEXCO)**, Japan. \$85,000. 2023-24.
3. Co-PI, AIM-HDR: AI/ML Powered Secure Healthcare Data Repository; PI: Lakshman Tamil; **NIH AIM-AHEAD**, Subcontract through UTD RGV; \$192,000. Total grant is \$500,000, UTD portion is \$192,000. 2023-24.
4. Co-PI, Precise Detection of Objects in Camera Images. \$82,000. **Digit7 Corp.** PI: Xiaohu Guo, Co-PIs: Yunhui Guo, Doug DeGroot.
5. Co-PI, Efficient Algorithms for Matching ATE and DUT Pins. **TessolveDTS (India) Pvt Ltd.** \$70,000, 2022-2023. PI: Emily Fox, Co-PI: Doug DeGroot.
6. PI, A Prototype Machine Learning System for Load and Price Forecasting and Bid Optimization for the ERCOT market. **Rayburn Country Electric Cooperative, Inc.**, \$480,000. 2021-2024. Co-PI: Feng Chen. Co-PI: Doug DeGroot.

7. PI, “Consistent Logical Automated Reasoning for Integrated System Software Assurance (CLARISSA)” **Defense Advanced Research Projects Agency (DARPA) ARCOS Program**, \$682,374 (UT Dallas share). With Honeywell (prime) & Stanford Research Institute. 2020-2024.
8. PI, “Inducing Answer Set Programs to Provide Accurate and Concise Explanation of Machine-learned Models” **National Science Foundation**, \$450,000. 09/01/19-08/31/24.
9. PI, “An AI-based Physician Advisory System for Disease Management” **National Science Foundation**, \$50,000. 04/01/19-10/31/20. Co-PI: Lakshman Tamil.
10. Co-PI, “CNS - CISE - Research Experiences for Undergraduates Sites (Computer Sci. & Eng)” **National Science Foundation**, \$403,583. 02/2021-01/24. PI: Eric Wong.

## PAST RESEARCH GRANTS HELD

1. PI, “Efficient Implementations of Goal-directed Answer Set Programming.” **National Science Foundation**, \$420,000. 09/01/17-08/31/21.
2. PI, “Explainable AI for Industrial Problems”, **Atos Syntel Corp.** \$98,200, 2021. Co-PIs: Doug DeGroot, Prakash Shrivastava
3. PI, “Amazon Alexa Socialbot Challenge 4.0”, **Amazon.com.** 2021. \$250,000.
4. Co-PI, Predicting Day-Ahead and Spot Electricity Prices with Deep Learning. **Vistra Corporation** \$330,000. 2020. PI: Feng Chen. Co-PI: Doug DeGroot.
5. PI, “Design and Implementation of Goal-directed Solvers for Answer Set Programming.” **National Science Foundation**, \$495,109. 06/01/14-05/31/18.
6. Co-PI, “iPerform - I/UCRC for Assistive Technologies to Enhance Human Performance.” **National Science Foundation.** \$324,999  
Duration: 09/01/2014-12/31/2018. PI: O. Daescu, B. Prabhakaran, D. Bhatia.
7. Co-PI, “Net-Centric and Cloud Software and Systems (I/UCRC).” **National Science Foundation.** \$200,000  
Duration: 01/01/2014-12/31/2017. PI: F. Bastani. Co-PI: N. Mittal and I-L Yen.
8. Co-PI, “MRI: Dependability and Quality of Cloud Computing Systems,” **NSF**, PI: F. Bastani, Co-PI: I. Yen, \$489,668. 06/01/11-05/31/15
9. Co-PI, “CHAMPS: CHallenging Algorithmics and Mathematics in Problem Solving for middle-school students.” **NSF.** \$2,726,035, 2008-13. PI: Cobb, Other Co-PIs: Zhang, Huynh, Ntafos, Kim, Andreescu, Butts.
10. Co-PI, “Incorporating Software Testing into Multiple Computer Science and Software Engineering Undergraduate Courses,” **NSF.** PI: W. E. Wong, co-PI: S. Kim, and L. Khan, \$594,161, 09/01/2010-08/31/2013
11. PI, “Training Students for Research and Teaching Careers in Computer Science and Software Engineering,” **Dept. Of Education.** \$507,000, 2006-11. Co-PI: Zhang, Huynh, Ntafos, Kim, Mili. \$500,000 matching funds from Texas Enterprise Funds.

12. Co-PI. Web-based Emergency Response Management Technology. **US Environmental Protection Agency** and **US Dept. of Homeland Security**. \$4,800,000, 2000-11. PI: D. Harris.
13. PI, "Development of Domain Specific Search Engines" \$30,000. **Visvo, Inc.**. Co-PI: K. Zhang.
14. PI, "A Domain-specific Language for Supply Chain Management," \$54,000. **Modria, Inc.** through **Texas Emerging Technology Fund**. 2008-2009. Co-PI: I-Ling Yen, Farokh Bastani.
15. PI. Buffer Attack-proofing Software Binaries. **AT&T Corp.** \$16,667 with \$16,667 matching funds from the State of Texas Emmit Project Funds. (PI receiving grant is E. Douglas Harris). 2005-2006.
16. Co-PI, "Networking Security Research," **Department of Defense**. \$75,000. PI: K. Sarac.
17. Co-PI, "Computer Security Research," **Department of Defense**. \$40,000. PI: M. Kantarcioglu.
18. Co-PI, Planning Grant: IUCRC Center Proposal: Net-Centric Software and Systems **National Science Foundation**. \$50,000  
Duration: 01/2008-12/2009. PI: F. Bastani. Co-PI: N. Mittal and I-L Yen.
19. Consultant, "Interdisciplinary research in bioinformatics." Award to New Mexico State University from **NSF**. 2004-2009.
20. PI. Development of a Universal Services Description Language (USDL). **Metallett Corp.** \$20,000 with \$20,000 matching funds from the State of Texas Emmit Project Funds. 2005-2006.
21. Co-PI. Training Software Engineers for the High-Tech Workforce. PI: K. Zhang. Co-PIs: S. Kim, D. T. Huynh, S. Ntafos, S. Bowen. **NSF**. \$385,000. 2004-2008. Additional matching funds from UT Dallas: \$120,000.
22. Co-PI. The Development of a Global Translation Appliance with Applications to Assistive Technologies. PI: A. Karshmer, Co-PIs: K. Miesenberger (Linz), E. Pontelli (NMSU). **Dept. of Education**. \$417,000. 2001-2006.
23. PI. Resources for Research in Scalable Parallel Computing and Networking Simulation. **US National Science Foundation (NSF)**. (including 33% matching funds from UTD) \$93,000, Co-PIs: R. Prakash, O. Daescu. 2001-2006.
24. PI, "Horn Logic Denotations and their Applications" **National Science Foundation (NSF)** (International Division), \$27,000, 1999-05. (Collaboration with Neil Jones (Denmark) and Michael Leuschel (England)).
25. Co-PI, "Training Students for Interdisciplinary Research and Teaching Careers in Computer Science and Traditional Sciences," **Dept of Education**. \$306,000, 2000-03. PI: A. Karshmer. Co-PI: D. Ranjan.

26. Co-PI. Translator Filter Technology for Bioinformatics Software Tools. **ARO sub-contract from Physical Science Lab, NMSU**. \$55,000, 2000-01. PI: B. Milligan (NMSU Biology). Co-PI: D. Ranjan, E. Pontelli
27. Co-PI, "Complexity Study of Dynamic Data-structures in Advanced Programming Language Implementation," **National Science Foundation (NSF)** (CISE Theory div.), \$215,000, 2000-03. PI: D. Ranjan, Co-PI: E. Pontelli.
28. PI, "High-performance, Scalable Parallel Constraint Programming Systems," **National Science Foundation (NSF)** (Operating Systems and Compilers Directorate), \$140,000, 1999-02. Co-PI: Enrico Pontelli.
29. Co-PI, "Non-visual Browsing of the World Wide Web: Tables, Frames and Forms" **National Science Foundation (NSF)**, \$575,000, PI: Art Karshmer, Co-PI: Enrico Pontelli. 1999-2002.
30. Co-PI, "Mathematics Accessible to Visually Impaired Students" **National Science Foundation (NSF)**, \$581,000, PI: Art Karshmer, Co-PI: Sandy Geiger. 1998-2001.
31. Project Co-director, "Irregular and Dynamic Parallelism in Symbolic and Scientific Computing," \$1,500,000. (11 other Co-PIs). **National Science Foundation (NSF)** Infrastructure Grant (MII).
32. PI, "Workshop for NSF PIs," **National Science Foundation (NSF)** \$84,000, 1999-00.
33. Co-PI, "Laboratory for Logic and Databases," **National Science Foundation (NSF)** (Human Resource Development Directorate), \$152,200, 1997-2000, other PI: H. Hernandez.
34. PI, "Parallel and Distributed Constraint Programming Systems on Multiprocessor PCs: Implementations and Applications, **National Science Foundation (NSF)**, \$37,000, 1998-1999, Co-PIs: E. Pontelli, J. Wiebe, D. Ranjan. (Research Instrumentation).
35. Co-PI, "Training Students for Research and Teaching Careers in Computer Science," **DOE**. \$367,000, 1997-00. PI: A. Karshmer. Co-PI: D. Ranjan.
36. Co-PI, "An Efficient Concurrent Constraint Framework for Symbolic and Internet/WWW Computing," \$18,000. **Fullbright Foundation**. 1998-99. Co-PI: E. Pontelli.
37. PI, "Summer School in Constraint Logic Programming," **National Science Foundation (NSF)** \$11,300, 1999-00.
38. PI, "NMSU Advising and Degree Audit System," **College of Arts and Sciences, NMSU** \$25,000, 1997-00.
39. PI, "Parallel Constraint Programming" **National Research Council**, \$2,750, 1999-00. (Collaboration with Hungary).
40. PI, "Implementation Techniques for Parallel Logic Programming: Incremental Development of Parallel Prolog Engines," **National Science Foundation (NSF)** (Programming Languages and Compilers Directorate), \$100,000, 1996-99.

41. PI, “Implementation and Analysis of Parallel Logic Programming and Concurrent Constraint Systems,” \$27,000 (International Travel only). **National Science Foundation (NSF)** under National Science Foundation (NSF)-Esprit collaboration program. 1995-99.
42. Co-PI, “WEB-KLIC: A Concurrent Logic-based Unified Framework for Programming the Internet,” **AITEC**, Japan, 1997-99, 3.0 Million Yen (approx \$27,000). Co-PI: Enrico Pontelli.
43. PI, “And-Or Parallel Execution of Logic Programs: A Stack Copying Approach”, **National Science Foundation (NSF)** (Research Initiation Award), \$90,000, 6/1/92–5/31/96.
44. Co-PI, “Laboratory for Logic and Databases,” **National Science Foundation (NSF)** (Human Resource Development Directorate), \$349,190, 1993-1996, other PI: Dr. Hector J. Hernandez.
45. PI, “Towards an Efficient Implementation of Extended Andorra Model,” \$65,000, 10/1/92–9/30/94, **Sandia** National Labs.
46. PI, “Parallel AI and Logic Programming,” **Oak Ridge** National Laboratories Junior Faculty Enhancement Program, \$5,000, 6/4/92–6/4/93 (10 funded out of 128 applications).
47. PI, “MAPLE: Multiprocessors And Parallel Logic Program Execution,” **NATO** Collaborative Research Grant, Brussels, \$13,500, co-PIs: D.H.D. Warren (U. of Bristol, UK), M. Hermenegildo (U. of Madrid, Spain), V. S. Costa (U. of Oporto, Portugal); Travel Only, 1/1/93–12/31/97.

## PROFESSIONAL ACTIVITIES

- **Invited Speaker at Technical Meetings:**

- ◊ 25th International Symposium on Practical Aspects of Declarative Languages, Invited Panelist on Explainability in AI, 2024, London, UK.
- ◊ 39th International Conference on Logic Programming, Plenary Speaker, 20203. London, UK.
- ◊ International Society for Statistical Computing, 2023. Invited Speaker in Colloquium Talk Series.
- ◊ CICLOPS Workshop at ICLP; 2017. Melbourne, Australia.
- ◊ Japan National Institute of Informatics Shonan Meeting on “Enhanced Coinduction”, November 2017, Shonan Village, Japan.
- ◊ Test-of-Time Award Talk at the 32<sup>nd</sup> International Conference on Logic Programming 2016.
- ◊ 4th Conference on Algebra and Co-algebra in Computer Science, Winchester, UK, Aug 2011.
- ◊ Practical Aspects of Declarative Languages, 2009. Savannah, GA.
- ◊ Rules Fest Conference (A practitioners’ conf. on Rule-based Programming), Dallas, Oct. 2008.

- ◇ European Science Project Workshop on Math Accessibility, Paris, France, Feb. 2008.
- ◇ Keynote speaker, Doctoral Consortium, International Conference in Logic Programming 2006, Seattle, WA.
- ◇ Workshop on Declarative Languages for Multicore Architectures, Jan 15, 2006. Charleston, SC.
- ◇ Workshop on Logical Spreadsheets, Sep 24, 2005. Stanford University, Palo Alto, CA.
- ◇ International Conference on Information Technology (CIT), Hyderabad, Dec. 2004.
- ◇ Workshop on Strategic Directions for Logic Programming, Apr 1998 (Shakertown, KY),
- ◇ 1997 Joint Conference on Declarative Languages June 1997 (Grado, Italy).
- **Invited Tutorial Speaker:**
  - ◇ Tutorial Speaker, Autumn School on Logic and Constraint Programming, Las Cruces, NM 2019. Topic: Coinductive and Abductive Logic Programming.
  - ◇ Tutorial speaker on Coninductive Logic Programming and its Applications, International Conference on Logic Programming, Porto, Portugal, 2007.
  - ◇ Tutorial speaker on Constraint Logic Programming and its Applications on Recent Advances in Programming Languages, Preconference workshop with Foundations of Software Technology and Theoretical Computer Science, Dec. 2000, (New Delhi, India).
  - ◇ Tutorial on Parallel Logic Programming, International Conference on Logic Programming 1993 (Budapest, Hungary).
- **Organizer**, ICLP 2020 Autumn School on Logic Programming, Rende, Italy, 2020
- **Founder**: PADL (Practical Aspects of Declarative Languages) series of symposia, held since 1999.
- **Steering Committee Member, 2013-onward**: Logic Program Synthesis and Transformation (LOPSTR) conference.
- **Program Chair**: International Symposium on Logic Programming Synthesis and Transformation. 2013.
- **Conference Co-Chair**: 25th International Conference on Logic Programming. Pasadena, CA.
- **Executive Committee Member**: Association for Logic Programming, 2003-2007.
- **Executive Board Member**: European Association for Programming Languages and Systems. 2001-2006.
- **Area Editor**: Theory and Practice of Logic Programming (flagship journal of logic programming). Elsevier Science Publishers. 2005-present.
- **Editorial Board Member**: Theory and Practice of Logic Programming, Cambridge University Press. 2000-2005.
- **Editorial Board Member**: Journal of Logic Programming. Elsevier Science Publishers. 1998-2000.
- **Conference Coordinator**: Association for Logic Programming, 2003-2007.

- **Workshop Co-Chair:** Application of Logic Programming to Semantic Web and Web Services (ALPSWS), Porto, 2007.
- **FLoC Workshop Chair:** Federated Logic Conferences, 2006, Seattle (manage 41 workshops part of FLoC'06).
- **FLoC Workshop Co-chair,** Application of Logic Programming to Semantic Web and Web Services (ALPSWS), Seattle, 2006.
- **FLoC Workshop Co-chair,** Multivalued Logic Programming and Applications (MVLPA), Seattle, 2006.
- **Program Co-chair:** 21st International Conference on Logic Programming. 2005. Sitges, Spain.
- **Track chair:** Software Engineering Track. 2nd International Conference on Distributed Computing and Internet Technology. 2005. Bhubaneshwar, India.
- **Principal Organizer:** 2nd Compulog Americas/ALP Summer School in Computational Logic, Dallas, TX, June 14-17, 2004. <http://www.cs.utdallas.edu/~gupta/summerschool>. Co-organizers: E. Pontelli, H. Guo.
- **Invited Participant:** NSF workshops on “Broadening Participation in Computer Science Research” to launch an NSF Program by the same name.
- **General Chair:** 1st Int’l Workshop on Practical Aspects of Declarative Languages (San Antonio, TX, Proc. published by Springer Verlag as LNCS 1551
- **General Chair:** 2nd Int’l Symposium on Practical Aspects of Declarative Languages, Boston, 2000. Proceedings published by Springer Verlag, LNCS 1753.
- **General Chair:** 3rd Int’l Symposium on Practical Aspects of Declarative Languages, Las Vegas, 2001. Proceedings by Springer Verlag, LNCS 1990.
- **General Chair:** 4th Int’l Symposium on Practical Aspects of Declarative Languages, Portland, OR, 2002. Proceedings by Springer Verlag, LNCS 2257.
- **General Chair:** 5th Int’l Symposium on Practical Aspects of Declarative Languages, New Orleans, LA, 2003. Proceedings by Springer Verlag, LNCS 2562.
- **General Chair:** 6th Int’l Symposium on Practical Aspects of Declarative Languages, Dallas, TX, 2004. Proceedings by Springer Verlag, LNCS 3057.
- **General Chair:** 7th Int’l Symposium on Practical Aspects of Declarative Languages, Long Beach, CA, 2004. Proceedings by Springer Verlag, LNCS 3351.
- **Co-Organizer:** CL2000 Workshop on (Constraint) Logic Programming and Software Engineering, London, July 2000.
- **Organizer:** NSF PIs’ Workshop for the Research Infrastructure (RI) Program and the Minority Institutions Infrastructure (MII) program. August 8-9, 1999 (Las Cruces, NM).
- **Founder and Organizer:** First COMPULOG AMERICAS Summer School on Constraint Logic Programming August 1-6, 1999 (Partially funded by the NSF). <http://www.cs.nmsu.edu/~complog/summerschool>.
- **Organizer:** Second COMPULOG AMERICAS Summer School on Constraint Logic Programming June, 2004. <http://www.utdallas.edu/~rsv031000/summerschool/>
- **Organizer:** 2014 ALP Summer School on (Constraint) Logic Programming June, 2014.

- **Co-founder and Co-coordinator:** COMPULOG AMERICAS organization. COMPULOG AMERICAS is a network of research groups in logic and constraint programming. Visit <http://www.cs.nmsu.edu/~complog>
- **Conference Chair:** 16th International Conference on Logic Programming. Las Cruces, NM, Dec. 1999. Visit <http://www.cs.nmsu.edu/~complog/conferences/iclp99>
- **Program Chair and General Chair:** First International Workshop on Practical Applications of Declarative Languages, 1999. San Antonio, TX. Proceedings published as Springer Verlag LNCS 1551.
- **Program Committee Memberships:**
  - ◊ 38th AAAI Symposium, 2024, Online.
  - ◊ 25th Int'l Symposium on Practical Aspects of Declarative Languages, 2024, Philadelphia, USA
  - ◊ 39th Int'l Conference on Logic Programming, 2023, London, UK.
  - ◊ 24th Int'l Symposium on Practical Aspects of Declarative Languages, 2023, Philadelphia, USA
  - ◊ 31st Int'l Symposium on Logic-Based Program Synthesis and Transformation (LOPSTR), 2022, Tbilisi, Georgia.
  - ◊ 38th Int'l Conference on Logic Programming, 2022, Haifa, Israel
  - ◊ 35th AAAI Symposium, 2021, Online.
  - ◊ 2021 IJCAI-PRCAI Symposium, Yokohama, Japan
  - ◊ 23rd Int'l Symposium on Practical Aspects of Declarative Languages, 2021, Copenhagen, Denmark.
  - ◊ 30th Int'l Symposium on Logic-Based Program Synthesis and Transformation (LOPSTR), 2020, Bologna, Italy.
  - ◊ 36th Int'l Conference on Logic Programming, 2021, Porto, Portugal.
  - ◊ 36th Int'l Conference on Logic Programming, 2020, Rende, Italy.
  - ◊ 29th Int'l Symposium on Logic-Based Program Synthesis and Transformation (LOPSTR), 2019, Porto, Portugal.
  - ◊ 33rd Int'l Conference on Logic Programming, 2017, Melbourne, Australia.
  - ◊ 31st Int'l Conference on Logic Programming, 2015, Cork, Ireland.
  - ◊ 26th Int'l Symposium on Logic-Based Program Synthesis and Transformation (LOPSTR), 2016, Edinburgh, Scotland.
  - ◊ 25th Int'l Symposium on Logic-Based Program Synthesis and Transformation (LOPSTR), 2015, Udine, Italy.
  - ◊ 24th Int'l Symposium on Logic-Based Program Synthesis and Transformation (LOPSTR), 2014, Kent, UK.
  - ◊ 30th Int'l Conference on Logic Programming, 2014, Vienna, Austria.
  - ◊ 29th Int'l Conference on Logic Programming, 2013, Istanbul, Turkey.
  - ◊ 2013 Int'l Conference on Algebras and Co-algebras in Computer Science, Wroclaw, Poland.
  - ◊ 2012 ACM Symposium on Applied Computing; Track on Programming Languages.

- ◇ 2012 ACM Symposium on Applied Computing; Track on Programming Languages.
- ◇ 28th International Conference on Logic Programming, 2012, Budapest, Hungary.
- ◇ 2011 ACM Symposium Applied Computing; Track on Domain Specific Languages.
- ◇ 14th International Symposium on Practical Aspects of Declarative Languages, 2011.
- ◇ 25th International Conference on Logic Programming, 2009, Pasadena, Italy.
- ◇ 24th International Conference on Logic Programming, 2008, Udine, Italy.
- ◇ 10th International Conference on Computers Helping People with Special Needs (ICCHP), 2008,
- ◇ 12th Colloquium for Information Systems Security Education, CISSE 2008.
- ◇ 18th Int'l Symposium on Logic-Based Program Synthesis and Transformation (LOPSTR), 2008, Valencia, Spain.
- ◇ 10th International Conference on Practical Applications of Declarative Languages 2007 (San Francisco, USA);
- ◇ 11th Colloquium for Information Systems Security Education, CISSE 2007.
- ◇ ICLP'07 Workshop on Applications of LP to Semantic Web and Web Services, 2007 (co-chair).
- ◇ ICLP'07 Workshop on Logic Programming Environments, 2006.
- ◇ FLoC'06 Workshop on Software Verification and Validation, Seattle, 2006.
- ◇ FLoC'06 Colloquium on Implementation of Constraint and Logic Programming Systems (CICLOPS), Seattle, 2006.
- ◇ FLoC'06 Workshop on Logic Programming Environment (WLPE), Seattle, 2006.
- ◇ 9th International Conference on Practical Applications of Declarative Languages 2007 (Nice, France);
- ◇ 10th Colloquium for Information Systems Security Education, CISSE 2006 (Baltimore, MD);
- ◇ 2nd Int'l Workshop on Automated Specification and Verification of Web Systems, WWV 2006 (Cyprus);
- ◇ 8th International Conference on Practical Applications of Declarative Languages 2006 (Charleston, SC);
- ◇ 2nd International Conference Distributed Computing and Internet Technology (Software Track Chair), 2005.
- ◇ 2005 ACM Symposium on Dynamic Languages, San Diego, USA.
- ◇ 2005 Logic Programming Synthesis and Transformation (LOPSTR), 2005, London, UK.
- ◇ 2005 Principles and Practice of Declarative Programming (PPDP), Lisbon, 2005.
- ◇ 1st International Conference Distributed Computing and Internet Technology (Software Track), 2004.
- ◇ 6th International Conference on Practical Applications of Declarative Languages 2003 (Dallas, TX);
- ◇ 5th International Conference on Practical Applications of Declarative Languages

- 2002 (Portland, OR);
- ◇ 13th Euromicro Workshop on Parallel and Distributed Processing, 2004.
- ◇ 20th International Conference on Logic Programming, 2002, Copenhagen, Denmark.
- ◇ 8th International Conference on Computers Helping People with Special Needs (ICCHP), 2004,
- ◇ 2004 Logic Programming Synthesis and Transformation (LOPSTR), 2004, Verona, Italy.
- ◇ 11th Portuguese Conference on Artificial Intelligence (EPIA'03).
- ◇ 2003 Logic Programming Synthesis and Transformation (LOPSTR), 2003, Uppsala, Sweden.
- ◇ ACM Workshop on Partial Evaluation and Semantics based Program Manipulation. 2003.
- ◇ 8th International Conference on Computers Helping People with Special Needs (ICCHP), 2002, Linz, Austria.
- ◇ 4th International Conference on Practical Applications of Declarative Languages 2002 (Portland, OR);
- ◇ 18th International Conference on Logic Programming, 2002, Copenhagen, Denmark.
- ◇ IEEE International Conference on Tools for AI 2001.
- ◇ 9th Euromicro Workshop on Parallel and Distributed Processing, 2001.
- ◇ Functional and Logic Programming Systems (FLOPS), 2001 (Japan).
- ◇ International Static Analysis Symposium 1999 (Venice);
- ◇ International Conference on Logic Programming 1999 (Las Cruces, NM);
- ◇ International Conference on Practical Applications of Constraints and Logic Programming 2000 (London);
- ◇ Practical Applications of Declarative Languages 2000 (Boston, MA);
- ◇ Practical Applications of Declarative Languages 1999 (San Antonio, TX);
- ◇ International Conference on Practical Applications of Constraints and Logic Programming 1999 (London);
- ◇ Hungarian-Austrian Workshop on Distributed and Parallel Systems, Hungary, July 2000.
- ◇ Brazilian Symposium on Computer Architecture and High Performance Computing 1999 (Natal, Brazil);
- ◇ 8th Euromicro Workshop on Parallel and Distributed Processing 2000 (Rhodos, Greece);
- ◇ International Conference on Practical Applications of Prolog 1998 (London);
- ◇ International Logic Programming Symposium 1997 (Stony Brook, NY);
- ◇ International Conference and Symposium on Logic Programming Bonn 1996 (Bonn, Germany);
- ◇ International Logic Programming Symposium 1994 (Ithaca, NY);

- ◇ International Logic Programming Symposium 1993 (Vancouver, BC);
- ◇ National Science Foundation/ICOT (Institute for Fifth Generation Computer Technology, Japan) Workshop on Parallel Processing 1994 (Eugene, OR);
- ◇ International Conference on Logic Programming 1993 (Budapest, Hungary).
- **Invited Panelist:**
  - ◇ Workshop on Declarative Languages for Multicore Architectures, Jan 15, Charleston, SC. Panel on Lessons from the Past and What it Means for Multicores.
  - ◇ International Conference on Logic Programming. Mumbai, India, 2003. Panel: Teaching Logic Programming in the Class Room.
  - ◇ International Conference on Logic Programming. Cyprus. 2001. Panel: Future Challenges in Logic Programming.
  - ◇ IEEE Conf. on High Assurance Software Engineering. 2000. Panel: Do formal methods really belong in the toolbox of a practicing engineer?
  - ◇ Discussion Panel on Strategic Directions for Logic Programming Research, 1997 Joint Conference on Declarative Languages (Grado, Italy, June 1997);
  - ◇ Discussion Panel on “Future Directions in Parallel Logic Programming Research” in Workshop on Parallel and Distributed Logic Programming (Washington DC., 1992).
- **Panel Organizer and Chair:**
  - ◇ International Conference on Logic Programming 1993 (Budapest, Hungary);
  - ◇ Practical Aspects of Declarative Languages 1999.
- **Guest Editor:**
  - ◇ Special issue of the Journal of Logic Programming on High Performance Implementations of Prolog, 1996 (with Mats Carlsson of Swedish Institute of Computer Science);
  - ◇ Special issue of the Journal of Functional and Logic Programming, MIT Press (with E. Pontelli and V. Santos Costa);
  - ◇ Volume on “Parallel and Implementation Technologies,” Nova Science Publishers, 1999.
- **Consultant:**
  - ◇ Logic Programming Expert (to Interoperate, Inc ).
  - ◇ Project TransBraille (to Logical Software Solutions).
  - ◇ Bioinformatics Project (to New Mexico State University).
  - ◇ Project Melodia (at the University of Oporto, Portugal, funded by the Portuguese Government);
  - ◇ Project Appelo (at the Federal University of Rio de Janeiro, Brazil, funded by the Brazilian Government).
- **Workshop Organizer:**
  - ◇ Goal-directed Execution of Answer Set Programs, 2021, 2022, 2023 (with J. Arias and E. Salazar).
  - ◇ ALPSWS Workshop in ICLP’07, Porto, Portugal.
  - ◇ Parallel Logic Programming Workshop, Las Cruces, NM, 1993 (funded by NATO);

- ◇ Post-conference Workshop on Parallel Logic Programming, International Logic Programming Symposium (Oct, 1991, San Diego, CA),
- ◇ Post-conference Workshop on Parallel Logic Programming, International Logic Programming Symposium (Nov. 1994, Ithaca, NY);
- ◇ Pre-conference Workshop on Parallel Logic Programming, International Conference on Logic Programming (June, 1991, Paris, France; Proceedings published by Springer Verlag, Lecture Notes in Computer Science 569).
- ◇ Birds-of-a-feather session on “Logic Programming as an Introductory Programming Paradigm” (report on the session appears in Association for Logic Programming Quarterly Newsletter Feb. 1993).
- **Thesis examiner** for a Ph.D. thesis at the
  - ◇ University of Melbourne, Australia.
  - ◇ SUNY Stony Brook (3 theses).
  - ◇ University of Hyderabad, India.
  - ◇ University of Cairo, Egypt.
- **Reviewing Activities:** Reviewed articles for:
  - Parallel Processing Conferences
    - ◇ International Conference on Parallel Processing (ICPP)
    - ◇ International Parallel Processing Symposium (IPSS)
    - ◇ Symposium on Parallel and Distributed Processing (SPDP),
    - ◇ Parallel Architecture and Languages Europe (PARLE),
    - ◇ International Supercomputing Conference
  - Logic Programming Conferences:
    - ◇ Logic Programming Synthesis and Transformation (LOPSTR)
    - ◇ Practical Aspects of Declarative Languages Symposium
    - ◇ International Conference on Logic Programming (ICLP)
    - ◇ North American Conference on Logic Programming (NACLPL)
    - ◇ International Logic Programming Symposium (ILPS)
    - ◇ Programming Language Implementation and Logic Programming (PLILP),
    - ◇ Principles and Practice of Declarative Programming (PPDP).
  - Other Conferences:
    - ◇ Principles of Programming Languages,
    - ◇ IEEE Realtime Systems Symposium
    - ◇ IEEE Tools in Artificial Intelligence,
    - ◇ Portuguese conference on AI
  - Journals:
    - ◇ Journal of Logic Programming
    - ◇ ACM Transactions on Programming Languages and Systems (TOPLAS)
    - ◇ Software Practice and Experience
    - ◇ Computer Journal
    - ◇ IEEE Computer

- ◇ Journal of Computer and System Sciences
- ◇ IEEE Parallel and Distributed Technology
- ◇ IEEE Transactions on Parallel and Distributed Systems
- ◇ IEEE Transactions on Mobile Computing
- ◇ Information Processing Letters
- ◇ Science of Computer Programming
- ◇ Journal of Computing and Information Technology

Funding Agencies:

- ◇ US National Science Foundation (multiple panels)
- ◇ Austrian Science Foundation
- ◇ Irish National Science Foundation.
- ◇ Newzealand National Science Foundation.
- ◇ Belgian National Science Foundation.
- **Participant:** the 1987 Summer School on Parallel Processing (Argonne National Laboratory) [25 applicants selected out of 125].

## PROFESSIONAL AFFILIATIONS

- Member, Association for Computing Machinery (ACM), since 1988.
- Member, Association for Logic Programming (ALP), since 1988.
- Member, ACM Special Interest Group on Prog. Lang. (SIGPLAN), since 1988.
- Member, ACM Special Interest Group on Software Engineering (SIGSOFT), since 1998.

## PAST/PRESENT COLLABORATORS

- Dr. Arlin Stoltzfus (Univ. of Maryland Bioinformatics Inst.)
- Ms. Susan Osterhaus (Texas School for Blind and Visually Impaired, Austin, TX).
- Dr. Klaus Miesenberger (University of Linz, Austria).
- Dr. Dominique Archambault (University of Paris VI, France).
- Dr. Donal Fitzpatrick (University of Dublin, Ireland).
- Dr. Art Karshmer (Univ. of San Francisco, CA)
- Dr. Ken Bowen (Advanced Logic Systems, Newton, MA)
- Dr. Khayri Ali (Swedish Institute of Computer Science, Sweden)
- Dr. Tony Beaumont (University of Bristol, UK)
- Dr. Mats Carlsson (Swedish Institute of Computer Science, Sweden)
- Dr. Doug Gillan (New Mexico State Univ., Psychology)
- Dr. Neil Jones (University of Copenhagen, Denmark)
- Dr. Michael Leuschel (Southampton University, UK)

- Dr. Manuel Hermenegildo (Politecnica de Madrid, Spain)
- Dr. Brook Milligan (New Mexico State Univ., Biology)
- Dr. Manuel Carro (Politecnica de Madrid, Spain)
- Dr. Bharat Jayaraman (SUNY-Buffalo, USA)
- Dr. Feliks Kluźniak (University of Warsaw, Poland)
- Dr. Vitor Santos Costa (University da Oporto, Portugal)
- Dr. David H. D. Warren (University of Bristol, UK)
- Dr. Rong Yang (University of Bristol, UK)
- Dr. Kish Shen (University of Manchester, UK)
- Dr. Inês Dutra (Universidade Federal do Rio de Janeiro, Brazil)
- Dr. Claudio Geyer (Universidade Federal do Rio Grande del Sul, Brazil)
- Dr. Janyce Wiebe (University of Pittsburgh)
- Francesco Pulvirenti (University of Padova, Italy)

## STUDENTS SUPERVISED

### Ph.D.

- ◇ **Enrico Pontelli**, graduated Aug. '97, Ph.D. Thesis: Design, Analysis, and Implementation of Parallel Logic Programming Systems (employed as Professor of Computer Science at NMSU; awarded **NSF CAREER** grant);
- ◇ **Haifeng Guo** (Ph.D. Thesis: Distributed and Tabled Logic Programming System. Oct. 2000 (currently Assistant Professor, University of Nebraska at Omaha).
- ◇ **Luke Simon** (Ph.D. Thesis: Co-Inductive Logic Programming); August 2006 (currently Senior Software Engineer, Microsoft).
- ◇ **Ajay Mallya** (Ph.D. Thesis: Deductive Multi-valued Model Checking); August 2006 (currently Senior Software Engineer, Amazon.com).
- ◇ **Qian Wang** (Ph.D. Thesis: Semantic-based Formal Language Translation); Nov 2007. Senior Programmer, Interoperate LLC (start-up based on his thesis research).
- ◇ **Ajay Bansal** (Ph.D. Thesis: Next Generation Logic Programming Systems) Nov 2007. Assistant Professor, Arizona State University.
- ◇ **Srividya Kona** (Ph.D. Thesis: Automated Discovery and Composition of Web Services); Nov 2007. Associate Professor, Arizona State University,
- ◇ **Richard Min** (Ph.D. Thesis: Predicate Answer Set Programming); Apr 2009. Senior Lecturer, UT Dallas.
- ◇ **Stanley Jointer** (Ph.D. Thesis: Learning-Reasoning Lattices with Applications to Health Care); May 2011. Co-Supervisor: Dr. Lakshman Tamil. Assistant Professor. University of Virgin Islands.
- ◇ **Neda Saeedloei** (Ph.D. Thesis: Modeling and Verification of of Timed- and Cyber-Physical Systems); Sep. 2011. Assistant Professor, Southern Illinois University, Carbondale.

- ◇ **Kyle Marple** (Ph.D. Thesis: Goal Directed Execution of Answer Set Programs and their applications); WalMart Technology Labs, UT Dallas. 2014.
- ◇ **Savio Monteiro** (Ph.D. Thesis: HygeiaTel: An Advanced Telemedicine Platform); Co-supervised with Lakshman Tamil, Dec 2015. Senior Software Engineer: Computer Associates, Inc.
- ◇ **Mohammad Ghaderi** (Ph.D. Thesis: A Flexible Comprehensive Software Platform for Disease Management); Co-supervised with Lakshman Tamil, Dec 2016. Senior Software Engineer: iSono Health, Inc.
- ◇ **Elmer Salazar** (Ph.D. Thesis: Predicate Answer Set Programming); August 2019; Assistant professor of Instruction, UT Dallas. 2017.
- ◇ **Zhuo Chen** (Ph.D. Thesis: Common Sense Reasoning and Answer Set Programming); (co-supervised with Lakshman Tamil). Postdoc: UT Dallas. 2017.
- ◇ **Farhad Shakerin** (Ph.D. Thesis: Inductive Learning of Default Theories); Microsoft Corp. 2020.
- ◇ **Kinjal Basu** (Ph.D. Thesis: Semantics-based Natural Language Processing); IBM TJ Watson Research. 2022.
- ◇ **Sarat Varanasi** (Ph.D. Thesis: Automated Concurrent Program Synthesis (co-supervised with Neeraj Mittal)); GE Research. 2022.
- ◇ **Fang Li** (Ph.D. Thesis: Graph-based Implementations of Answer Set Programming); Faculty member at Oklahoma Christian University. 2022.
- ◇ **Huaduo Wang** (Ph.D. Thesis: Scalable Explainable AI); Meta (formerly Facebook). 2022.
- ◇ **Parth Padalkar** (Ph.D. Thesis: Translating Textual Knowledge to Predicates).
- ◇ **Yankai Zeng** (Ph.D. Thesis: Conversational Bots that “Understand” humans).
- ◇ **Abhiramon Rajasekharan** (Ph.D. Thesis: Extracting Knowledge from Documents with LLMs and ASP).
- ◇ **Sopam Dasgupta** (Ph.D. Thesis: Counterfactual Reasoning).
- ◇ **Keegan Kimbrell** (Ph.D. Thesis: Visual Inferencing).
- ◇ **Alexis Tudor** (Ph.D. Thesis: Physics Informed Machine Learning).

**M.S.** Dhruva Pendharkar (Uber), Savio Monteiro (On to PhD), Abhilash Tiwari (Ske-julers), Suraj Walgudhe (CISCO), Shrirang Khisti (VMWare), Parag Doshi (Yahoo), Bharathi Boyareddigari (Startup), Aanchal Jain (Tektronix), Siddharth Chitnis (Qualcomm), Ramya Reguramalingam (Amazon.com), Sriram Sunderraman (Qualcomm), Madhu Yennamani (Novomatic), Ramakrishnan Venkitaraman (QualComm), Kunal Patel (Network Inference), Vinay Ahuja (Microsoft), Hemamber Reddy (Metalllect) Narayan Annamalai (InterVoice), X. Zhou (Sabre), C. Cheng (Cadence Design), N. Datta (Synopsis, Inc.), H. Guo (NSF Postdoc fellow, SUNY Stonybrook), S. Akhter (Intel), F. Bassetti (Los Alamos), J. Mendez (Texas Utilities), J. Bang (Ph.D. student at Imperial College, London), Rick Vaupel (Lockheed), Haren Babu (Sequent Corp.),

— Also supervised overseas students: Joaquin Arias 2018 (PhD student at Polytechnic University of Madrid, Spain); Francesco Pulverenti 1997 (then, Masters student at University of Catania, Italy); Paolo Frigo 1996 (Ph.D. student at University of Siena, Italy).

## ENTREPRENEURIAL ACTIVITIES

1. Co-Founder and CTO, Interoperate, Inc. The company was set up to commercialize my research in automated formal language translation technology. It earned \$1 Million investment from the Texas ETF. The products developed (WR2QTP, WR2Silk) had customers such as Siemens, GE, etc. (nearly all customers were large companies traded on the NYSE or NASDAQ stock exchange). US Library of Congress was also a customer. To date, the company has had several million dollars revenue in product sales and services.
2. Co-Founder and CTO, Logisoft Solutions, LLC. The company was set up to commercialize my research in backtranslating Nemeth Math Braille code to print PDF. It developed a very sophisticated product that took as input the scan of a braille sheet with Braille Math code mixed with contracted English textual Braille (brailled by a blind student), automatically separated them, automatically converted them to  $\LaTeX$  and printed the final result in pdf for a sighted viewer to read (goal was to facilitate reading of Braille documents by sighted viewers who don't know Braille). It also developed a product for aural navigation of complex mathematical expressions. Earned three Phase I SBIRs (from NSF and Department of Education) and one Phase II SBIR grant. The products were licensed by Interoperate, Inc., subsequently.
4. Advisor and Board member of several start-up companies related to healthcare, AI, etc.

## PATENT, TECHNOLOGY TRANSFER & CONTRACTS

1. Provisional Patent: Scalable Explainable AI (2022)
2. Invention Disclosure: An Answer Set Programming-based system for Automating treatment of congestive heart failure.
3. Patent: Method and Device for Early Detection of Heart Attack, L. Tamil, M. Nourani, G. Gupta, and S. Banerjee, U.S. patent 9,161,705; issued Oct. 20, 2015
4. Invention disclosure (IP assigned by UTD to inventors) for *constraint spreadsheets*.
5. A Semantics-based Translator for WinRunner TSL. Technology Transfer Agreement with Interoperate.biz, Inc, a start-up. 2007.
6. Development of a Universal Services Description Language (USDL). Technology Transfer Agreement with Metalect, Inc.
7. Technology transfer agreement with ALS, Inc., for building a parallel logic programming system based on the ALS (constraint) logic programming system. (with E. Pontelli, H-F. Guo, K. Villaverde)

## SOFTWARE SYSTEMS DEVELOPED

1. FOLD-SE, FOLD-R++, FOLD-RM, LIME-FOLD, SHAP-FOLD: family of explainable AI algorithms. Available on Github.
2. s(CASP): Extension of s(ASP) with constraints over reals. Available on github.

3. s(ASP): A goal-directed implementation of predicate ASP (available at <https://sourceforge.net/projects/sasp-system/>). The s(ASP) system is the only system that can execute predicate answer set programs in a goal-directed manner. Nearly 725 downloads as of July 2017.
4. Physician Advisory System: A system for automating guidelines used by cardiologists to manage chronic heart failure disease; provisional patent filed.
5. Galliwasp: A goal-directed implementation of ASP (available at [galliwasp.sourceforge.net](http://galliwasp.sourceforge.net)).
6. TSL2Silk: A complete translation system for translating Winrunner TSL scripts to 4Test Scripts (licensed to a start-up).
7. Course Scheduler: A Class Scheduling system for scheduling courses in the Engineering School at UTD (used by UT Dallas for a number of years).
8. Nemeth to Latex Backtranslator: A system for converting Nemeth Math Braille document to Latex (technology used by Logical Software Solutions to develop a product).
9. TA Scheduler: A resource allocation system for matching teaching assistants to courses based on skills, instructor preferences, etc (in-use within UT Dallas for the last 12+ years).
10. SAVIIN: A system for helping blind individuals navigate a building using RFID technology.
11. VoxBoox: A system for aurally navigating books published on the Internet using voice and audio.
12. Dynamic VXML Navigator: A system for aurally navigating voice/audio documents.
13. Knowledgesheet: A Spread-sheet based tool for solving constraint satisfaction problems. This was later refined into the ExSched and the PlanEx constraint-based spread-sheet systems.
14. Executable RDF/RDQL: A semantic web inference system for executing RDQL queries on RDF coded data.
15. HTML/VXML Transcoder: A system for automatically translating HTML to VoiceXML for aural access.
16. NADA System: A degree audit system developed for New Mexico State University, College of Arts and Sciences to check for graduation requirements.
17. ACE: A High Performance Parallel Prolog System implemented on top of SICStus Prolog
18. VACE: A tool for visualizing and-or parallel execution of logic programs.
19. PALS: Parallel ALS, a distributed logic programming system based on the commercial ALS Prolog system.

20. TALS: Tabled ALS, a tabled logic programming system based on the commercial ALS Prolog system.
21. An Interpreter for EqL, an equational language.

## PUBLICATIONS

### Refereed Journal Publications:<sup>1</sup>

1. Sarat Chandra Varanasi, Neeraj Mittal and Gopal Gupta. Locksynth: A tool to derive synchronization code for concurrent data structures using Answer Set Programming. *Theory and Practice of Logic Programming (TPLP)*. Vol 23, No. 4. pp. 812-831
2. Saxena P, Singh SK, Gupta G. Achieving Effective Learning Outcomes through the Use of Analogies in Teaching Computer Science. *Mathematics*. 2023; 11(15):3340. <https://doi.org/10.3390/math11153340>. pp. 1-18.
3. Joaquin Arias, Manuel Carro, Zhuo Chen, Gopal Gupta: Modeling and Reasoning in Event Calculus using Goal-Directed Constraint Answer Set Programming. *Theory Pract. Log. Program.* 22(1): 51-80 (2022)
4. Dhruva Pendharkar, Kinjal Basu, Farhad Shakerin, Gopal Gupta: An ASP-based Approach to Answering Natural Language Questions for Texts. *Theory Pract. Log. Program.* 22(3): 419-443 (2022) (best paper in PADL 2019 conference).
5. Huaduo Wang, Farhad Shakerin, Gopal Gupta: FOLD-RM: A Scalable, Efficient, and Explainable Inductive Learning Algorithm for Multi-Category Classification of Mixed Data. *Theory Pract. Log. Program.* 22(5): 658-677 (2022)
6. Joaquin Arias, Seppo Trm, Manuel Carro, Gopal Gupta: Building Information Modeling Using Constraint Logic Programming. *Theory Pract. Log. Program.* 22(5): 723-738 (2022)
7. Agostino Dovier, Andrea Formisano, Gopal Gupta, Manuel V. Hermenegildo, Enrico Pontelli, Ricardo Rocha. Parallel Logic Programming: A Sequel. In *Theory and Practice of Logic Programming Journal*. Cambridge University Press. To appear 2022. 69 pages.
8. Joaquin Arias, Manuel Carro, Zhuo Chen, Gopal Gupta: Modeling and Reasoning in Event Calculus using Goal-Directed Constraint Answer Set Programming. *Theory and Practice Logic Programming Journal* 22(1): 51-80. Cambridge University Press. (2021).
9. Farhad Shakerin and Gopal Gupta. White-box Induction From SVM Models: Explainable AI with Logic Programming. In *Theory and Practice of Logic Programming Journal*, 20(5):656-670. 2020.

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<sup>1</sup>All invited papers went through the regular reviewing process of the journal they appeared in.

10. Zhuo Chen, Elmer Salazar, Kyle Marple, Lakshman Tamil, Gopal Gupta, Sandeep Das, Alpesh Amin, Daniel Cheeran. An AI-based Heart Failure Treatment Adviser System. *IEEE Journal of Translational Engineering in Health and Medicine*. 2018;6:2800810. Published 2018 Nov 23. doi:10.1109/JTEHM.2018.2883069
11. Joaquin Arias, Manuel Carro, Elmer Salazar, Kyle Marple, Gopal Gupta. Constraint Answer Set Programming without Grounding. *Theory and Practice of Logic Programming Journal (Proc. ICLP'18)*, TPLP 18(3-4): 337-354 (2018)
12. Farhad Shakerin, Elmer Salazar, Gopal Gupta. Inductive Learning of Default Theories. *Theory and Practice of Logic Programming Journal* 17(5-6): 1010-1026 (Proc of 33rd International Conf. on Logic Programming 2017).
13. Zhuo Chen, Elmer Salazar, Kyle Marple, Lakshman Tamil, Gopal Gupta, Sandeep Das, Alpesh Amin. Improving Adherence to Heart Failure Management Guidelines via Abductive Reasoning. *Theory and Practice of Logic Programming Journal* 17(5-6): 764-779 (Proc of 33rd International Conf. on Logic Programming 2017).
14. Zhuo Chen, Kyle Marple, Elmer Salazar, Lakshman Tamil, Gopal Gupta. A Physician Advisory System for Chronic Heart Failure Management Based on Knowledge Patterns. *Theory and Practice of Logic Programming Journal* 16(5-6): 604-618. (Proc of 32nd International Conf. on Logic Programming 2016).
15. Srividya Kona Bansal, Ajay Bansal, Gopal Gupta, M. Brian Blake: Generalized Semantic web Service Composition. *Service Oriented Computing and Applications* 10(2): 111-133 (2016)
16. G. Gupta. Language Based Software Engineering. *Sci. of Computer Programming*. Elsevier. 97: 37-40, 2015.
17. Kyle Marple, Gopal Gupta. Dynamic Consistency Checking in Goal-Directed Answer Set Programming. *The Journal of Theory and Practice of Logic Programming (Proc ICLP'14)*; 14(4-5): 415-427 (2014).
18. S. Kona, A. Bansal, G. Gupta. USDL: A Service-Semantics Description Language for Automatic Service Discovery and Composition. *International Journal of Web Services Research*. Jan 2009. 6(1): 20-48.
19. H-F Guo, G. Gupta. Dynamic Reordering of Alternatives for Definite Logic Programs, *Journal of Computer Languages*, Elsevier, 35(3):252-265 (October 2009)
20. A. Saeed, M. Faezipour, M. Nourani, S. Banerjee, G. Lee, G. Gupta, L. Tamil. A Scalable Wireless Body Area Network for Bio-Telemetry. *Journal of Information Processing Systems* 5(2): 77-86 (2009).
21. H-F. Guo, G. Gupta. Simplifying Dynamic Programming via Mode-directed Tabling. *Software Practice and Experience*. 38(1): 75-94 (2008). Jan 2008.

22. E. Pontelli, K. Villaverde, H. Guo, G. Gupta. PALS: A Scalable Parallel Logic Programming System. *Journal of Theory and Practice of Logic Programming*. Vol 7, No. 6, Nov 2007. pp. 633-696.
23. E. Pontelli, K. Villaverde, H. Guo, G. Gupta. Stack Splitting: a Technique for Efficient Exploitation of Search Parallelism on Share-nothing Platforms. *Journal of Parallel and Distributed Computing*. 2006. pp. 1267-1293.
24. E. Pontelli, D. Ranjan, G. Gupta, B. Milligan. Design and Implementation of a Domain Specific Language for Phylogenetic Inference. *Journal of Bioinformatic and Computational Biology*, 1(2):2003. pp. 201-230.
25. E. Pontelli, D. Gillan, G. Gupta, A. Karshmer, E. Saad, W. Xiong. Intelligent non-visual navigation of complex HTML structure. *International Journal: Universal Access in the Information Society*. Vol 2, No. 1, Nov. 2002.
26. F. Harary, G. Gupta, "A Constraint Logic Programming Approach for Generating All Perfect Matchings," *Applied Mathematics Letters*. 2002.
27. G. Gupta, E. Pontelli, K. Ali, M. Carlsson, M. Hermenegildo, Parallel Execution of Prolog Programs: A Survey. In *ACM Transactions on Programming Languages and Systems*, Vol 23, No. 4, pp. 472-602.
28. G. Gupta and E. Pontelli. Optimization Schemas for Parallel Implementation of Non-deterministic Languages. In *Software Practice and Experience* Vol 31, pp. 1143-1181. 2001.
29. E. Pontelli and G. Gupta. Backtracking in Independent And-Parallel Implementations of Non-Deterministic Languages. In *IEEE Trans. on Parallel and Distributed Computing*, 12(11):1169-1189, Nov. 2001.
30. D. Ranjan, E. Pontelli, L. Longpre, and G. Gupta. The Temporal Precedence Problem. In *Algorithmica*, Vol 28, No. 3, pp. 288-306. Nov. '00.
31. D. Ranjan, E. Pontelli, G. Gupta. "Data Structures for Order-sensitive Predicates in Parallel Non-deterministic Languages. *Acta Informatica*. 37(1): 21-43 (2000).
32. E. Pontelli, D. Ranjan, G. Gupta. "Complexity of Late-binding in Dynamic Object-Oriented Languages," In *Journal of Functional and Logic Programming*, MIT Press, Special Issue #2, 1999.
33. D. Ranjan, E. Pontelli, and G. Gupta. "On the Complexity of Or-parallelism," In *New Generation Computing: An International Journal* Vol. 17, No. 3, May 1999.
34. E. Pontelli and G. Gupta. "Extended Dynamic Dependent And-parallelism," *Journal of Functional and Logic Programming*, Special Issue #1, 1999, MIT Press.
35. A. Karshmer, G. Gupta, et al. "Reading and Writing Mathematics: The MAVIS Project," In *Behavior and Information Technology*, **invited paper**, 1999 18(1):2-10.
36. D. Ranjan, E. Pontelli, G. Gupta. Efficient Algorithms for the Temporal Precedence Problems. *Information Processing Letters*. 68(2):71-78, 1998.

37. F. Harary and G. Gupta, "On Dynamic Graph Models." In *Computer and Mathematical Modeling*, 25(7):79-87, 1997.
38. E. Pontelli and G. Gupta, "Parallel Symbolic Computation with ACE," **invited paper**, In *Annals of Artificial Intelligence and Mathematics*, 21 (1997) 359-395, Dec. '97.
39. E. Pontelli, G. Gupta, D. Tang, M. Hermenegildo, M. Carro, "Improving the Efficiency of Non-deterministic Independent And-parallel Logic Programming Systems," **invited paper**, *Journal of Computer Languages*, Vol. 22, No. 2-3, pp. 115-142, Oct. 1996.
40. D. Tang and G. Gupta, "A Parallel Dynamic Programming Algorithm," *Journal of Computers and Mathematics with Applications*, Pergamon Press Vol 30, No. 8, pp. 65-74, 1995.
41. G. Gupta, V. Santos Costa, "Cuts and Side-effects in And-Or Parallel Prolog," *Journal of Logic Programming*, Vol 27(1), April 96, 45-71.
42. G. Gupta and V. Santos Costa, "Optimal Implementation of And-Or Parallel Prolog," **invited paper** (selected papers from PARLE'92: Parallel Architectures and Languages Europe), *Journal of Future Generation Computer Systems*, Vol 10, No. 1 pp. 71-92, Elsevier Science Publishers, Apr. 1994.
43. G. Gupta, M. Hermenegildo, V. Santos Costa, "And-Or Parallel Prolog: A Recomputation Based Approach," **invited paper** (selected papers from International conference on Fifth Generation Computer Systems 1992), *New Generation Computing: An International Journal*, Vol. 11 (3,4), June 1993, pp. 298-321.
44. G. Gupta and B. Jayaraman "AO-WAM : A WAM Extension for Compiled And-Or Parallelism," *Journal of Logic Programming*, Vol. 17, No. 1, Oct. 1993, pp. 59-89.
45. G. Gupta and B. Jayaraman "Analysis of Or-parallel Execution Models," *ACM Transactions On Programming Languages and Systems (ACM TOPLAS)*, Vol 15, No. 4, September 1993, pp. 659-680.
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