Curriculum Vitae

Krishnaprasad Thirunarayan (T. K. Prasad)

Metadata and Languages Laboratory
Knoesis : Ohio Center of Excellence in Knowledge-enabled Computing
Department of Computer Science and Engineering
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Date of appointment to present rank of Full Professor at Wright State University: September 2009.

Education

Institution	Concentration	Degree	Date
State Univ. of New York at Stony Brook	Computer Science	Ph.D.	1989
Indian Inst. of Science at Bangalore	Computer Science	M.E.	1984
Indian Inst. of Technology at Madras	Electrical Engr.	B. Tech.	1982

Academic and Professional Experience

Institution	Position	Dates
Wright State Univ	Professor with Tenure	2009 – present
Wright State Univ	Associate Professor with Tenure	1995 – 2009
Sensors Directorate, WPAFB	Visiting Reseach Faculty	2007, 2011, 2014
Cohesia Corporation	Consultant	1999 – 2002
Wright State Univ.	Assistant Professor	1989 – 1995
Microelectronics Division, WPAFB	Summer Research Faculty	1994, 1995, 1997
SUNY at Stony Brook	Graduate Assistant	1984 – 1989

Honors and Awards

Institution	Award	Year
WSU College of Egr. and Comp. Sci.	Outstanding Faculty Award	2014 – 2015
Indian Intl. Conf. on AI	Achievement and Service Award	2011
IEEE, Dayton Section	Fritz J. Russ Award	2011
Indian Intl. Conf. on AI	Achievement and Service Award	2009
WSU College of Egr. and Comp. Sci.	Outstanding Faculty Award	2007 – 2008

Journal Articles

Manas Gaur, Vamsi Aribandi, Amanuel Alambo, Ugur Kursuncu, Krishnaprasad Thirunarayan, Jonanthan Beich, Jyotishman Pathak, Amit Sheth: Characterization of Time-variant and Time-invariant Assessment of Suicidality on Reddit using C-SSRS, *PLoS ONE*, 24 pages, 2021. (to appear)

Amit Sheth, and Krishnaprasad Thirunarayan: The Duality of Data and Knowledge Across the Three Waves of AI, *IT Professional Magazine* (special section to commemorate the 75th Anniversary of IEEE Computer Society), 23 (3) April-May 2021. (to appear)

Shweta Yadav, Usha Lokala, Raminta Daniulaityte, Krishnaprasad Thirunarayan, Francois Lamy, and Amit Sheth: "When they say weed causes depression, but it's your fav antidepressant": Knowledge-aware attention framework for relationship extraction. *PLoS ONE* 16(3): e0248299. 2021. `https://doi.org/10.1371/journal.pone.0248299`

Amir Hossein Yazdavar, Mohammad Saeid Mahdavinejad, Goonmeet Bajaj, William Romine, Amit Sheth, Amir Hassan Monadjemi, Krishnaprasad Thirunarayan, John M. Meddar, Annie Myers, Jyotishman Pathak, and Pascal Hitzler: Multimodal mental health analysis in social media, *PLoS ONE* 15(4): e0226248. 2020. `https://doi.org/10.1371/journal.pone.0226248`.

Saeedeh Shekarpour, Faisal Alshargi, Krishnaprasad Thirunarayan, Valerie L Shalin, Amit Sheth, and Mohammadreza Rezvan: Analyzing and learning the language for different types of harassment, *PLoS ONE*. 15(3):e0227330. 2020 `doi:10.1371/journal.pone.0227330`

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Utkarshani Jaimini, Tanvi Banerjee, William Romine, Krishnaprasad Thirunarayan, Amit Sheth and Maninder Kalra: "Investigation of an Indoor Air Quality Sensor for Asthma Management in Children", *IEEE Sensors Letters*, Vol. 1 (Issue 2), pp. 1-4, April 2017.

R. Daniulaityte, F. Lamy, A. Smith, R. Nahhas, R. Carlson, K. Thirunarayan, S. S. Martins, E. W. Boyer, and A. Sheth: "Retweet to Pass the Blunt": Analyzing Geographic and Content Features of Cannabis-Related Tweeting Across the United States, *Journal of Studies on Alcohol and Drugs*, November 2017. (6 pages)

R. Daniulaityte, L. Chen, F. Lamy, R. Carlson, K. Thirunarayan, and A. Sheth: "When 'bad' is 'good"': Identifying personal communication and sentiment in drug-related tweets. *JMIR Public Health Surveillance*, 2(2):e162, 2016.
DOI: 10.2196/publichealth.6327

P. Anantharam, P. Barnaghi, K. Thirunarayan, and A. Sheth: Extracting City Traffic Events from Social Streams, In: *ACM Transactions on Intelligent Systems and Technology*, Vol. 6(4), pp. 2-27, 2015. DOI:http://dx.doi.org/10.1145/0000000.0000000

K. Thirunarayan and A. Sheth: Semantics-empowered Big Data Processing with Applications, In: *AI Magazine*, Vol. 36, No. 1, pp. 39-54, Spring 2015.

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A. H. Ranabahu, M. Maximilian, A. Sheth, K. Thirunarayan, Application Portability in Cloud Computing: An Abstraction Driven Perspective, IEEE Transactions on Services Computing, Vol. 8(6), pp. 945-957, 2015. DOI: 10.1109/TSC.2013.25

D. Cameron, A. P. Sheth, N. Jaykumar, G. Anand, K. Thirunarayan, G. A. Smith, A Hybrid Approach to Finding Relevant Social Media Content for Complex Domain Specific Information Needs. In: *Journal of Web Semantics : Science, Services and Agents on the World Wide Web*, 29: 39-52 (2014) NIHMS ID: NIHMS 652296.

K.Thirunarayan, P. Anantharam, C. Henson, and A. Sheth, Comparative Trust Management with Applications : Bayesian Approaches Emphasis, Future Generation Computer Systems, Vol. 31, pp. 182-199, February 2014.
http://dx.doi.org/10.1016/j.future.2013.05.006

S. Perera, C. Henson, K. Thirunarayan, A. Sheth, and S. Nair, Semantics Driven Approach for Knowledge Acquisition from EMRs, Special Issue on Data Mining in Bioinformatics, Biomedicine and Healthcare Informatics, *Journal of Biomedical and Health Informatics*, Vol. 18, No.2, pp.515-524, March 2014, doi: 10.1109/JBHI.2013.2282125, PMID: 24058038.

C. Arnold, J. Butts, and K Thirunarayan, Strategies for Combating Sophisticated Attacks, *Journal of Information Warfare*, Vol. 12, Issue 1, pp. 11-21, 2013.

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son's Hypothesis using Semantic Predications, *Journal of Biomedical Informatics* 46(2): 238-251, (2013). `http://dx.doi.org/10.1016/j.jbi.2012.09.004` `[PMID http://www.ncbi.nlm.nih.gov/pubmed/23026233] NIHMSID 411603`.

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C. Henson, K. Thirunarayan, and A. Sheth: An Ontological Approach to Focusing Attention and Enhancing Machine Perception on the Web, *Applied Ontology Journal*, 6(4), pp. 345-376, 2011.

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K. Thirunarayan: On Embedding Machine-Processable Semantics into Documents, *IEEE Transactions of Knowledge and Data Engineering*, Vol. 17, No. 7, pp. 1014-1018, July 2005.

K. Thirunarayan, A. Berkovich, and D. Sokol: An Information Extraction Approach to Reorganizing and Summarizing Specifications, In: *Information and Software Technology Journal*, Vol. 47, Issue 4, pp. 215-232, 2005.

K. Thirunarayan, G. Kniesel, and H. Hampapuram, Simulating Multiple Inheritance and Generics in Java, In : *Computer Languages*, Vol. 25(4), pp. 189-210, 2001.

K. Thirunarayan and R. L. Ewing, Structural Operational Semantics for a Portable Subset of Behavioral VHDL-93, In : *Formal Methods in System Design*, Vol. 18, pp. 69-88, 2001.

K. Thirunarayan, On the Relationship between Annotated Logic Programs and Nonmonotonic Formalisms, In: *Journal of Experimental and Theoretical Artificial Intelligence*, Vol. 7, pp. 391-406, Dec 1995.

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K. Thirunarayan and Michael Kifer, A Theory of Nonmonotonic Inheritance Based on Annotated Logic, *Artificial Intelligence Journal*, Vol. 60, pp. 23-50, Mar 1993.

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R. Ramesh, R. Verma, K. Thirunarayan and I.V. Ramakrishnan, Term Matching on Parallel Computers, In *Journal of Logic Programming*, Vol. 6, pp. 213-228, May 1989.

K. Thirunarayan, On the Computability of Circumscription, In *Information Processing Letters*, Vol. 27, pp. 237-243, April 1988.

Popular Tutorials

K. Thirunarayan: Trust Management : Multimiodal Data Perspective. (71K views as of 05/11/2021)

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K. Thirunarayan: Big Data Challenges and Trust Management.

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Book - Research Monograph

Amit P. Sheth and Krishnaprasad Thirunarayan: *Semantics Empowered Web 3.0: Managing Enterprise, Social, Sensor, and Cloud-based Data and Services for Advanced Applications*. Synthesis Lectures on Data Management, Morgan & Claypool Publishers, 2012. (174 pages)

`http://dx.doi.org/10.2200/S00433ED1V01Y201207DTM031`

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Edited Books

Marcelo Arenas, Oscar Corcho, Elena Simperl, Markus Strohmaier, Mathieu d'Aquin, Kavitha Srinivas, Paul Groth, Michel Dumontier, Jeff Heflin, Krishnaprasad Thirunarayan, Steffen Staab: The Semantic Web - ISWC 2015, 14th International Semantic Web Conference, Bethlehem, Pennsylvania, USA, October 11-15, 2015, Proceedings, Part I, Lecture Notes in Computer Science 9366, Springer 2015. ISBN 978-3-319-25006-9

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Conference, Bethlehem, Pennsylvania, USA, October 11-15, 2015, Proceedings, Part II, Lecture Notes in Computer Science 9367, Springer 2015. ISBN 978-3-319-25009-0

Abraham Bernstein, David R. Karger, Tom Heath, Lee Feigenbaum, Diana Maynard, Enrico Motto and Krishnaprasad Thirunarayan (Editors): *Proceedings of the 8th International Semantic Web Conference* (ISWC-2009), Washington DC, LNCS 5823, Springer-Verlag (Heidelberg), October 2009.

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Book Chapters

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Conference Papers

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Thilini Wijesiriwardene, Hale Inan, Ugur Kursuncu, Manas Gaur, Valerie L. Shalin, Krishnaprasad Thirunarayan, Amit Sheth and I. Budak Arpinar, ALONE: A Dataset for Toxic Behavior among Adolescents on Twitter *SocInfo20 (Social Informatics 2020)*, 13 pages, 2020.

Amanuel Alambo, Manas Gaur, Krishnaprasad Thirunarayan: Depressive, Drug Abusive, or Informative: Knowledge-aware Study of News Exposure during COVID-19 Outbreak, In: *Workshop on Knowledge-infused Mining and Learning (KDD-KiML 2020)*, (co-located with ACM KDD conference), 4 pages, 2020.

Utkarshani Jaimini, Amit Sheth, Krishnaprasad Thirunarayan, Maninder Kalra, and Marco Valtorta: Is it Safe for My Child's Asthma? In: *6th International Conference on Computational Social Science (IC2S2)*.

Amanuel Alambo, Cori Lohstroh, Erik Madaus, Swati Padhee, Brandy Foster, Tanvi Banerjee, Krishnaprasad Thirunarayan, Michael Raymer, Topic-centric Unsupervised Multi-document Summarization of Scientific and News Articles, 2020 IEEE Big Data Conference. (6 pages)

Amanuel Alambo, Ryan Andrew, Sid Gollarahalli, Jacqueline Vaughn, Tanvi Banerjee, Krishnaprasad Thirunarayan, Daniel Abrams, Nirmish Shah: Measuring Pain in Sickle Cell Disease using Clinical Text, In: *42nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, 4 pages, 2020.

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Hussein S Al-Olimat, Valerie L Shalin, Krishnaprasad Thirunarayan, Joy Prakash Sain: Towards Geocoding Spatial Expressions (Vision Paper). In: *Proceedings of the 27th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems* (SIGSPATIAL '19), pp. 75-78, 2019. [Second Place winner of CCC Blue Sky Idea Award]

Ugur Kursuncu, Manas Gaur, Carlos Castillo, Amanuel Alambo, Krishnaprasad Thirunarayan, Valerie Shalin, Dilshod Achilov, I. Budak Arpinar, Amit Sheth: Modeling Islamist Extremist Communications on Social Media using Contextual Dimensions: Religion, Ideology, and Hate, In: *The 22nd ACM Conference on Computer-Supported Cooperative Work and Social Computing* (CSCW 2019), 21 pages, 2019.

Manas Gaur, Amanuel Alambo, Joy Prakash Sain, Ugur Kursuncu, Krishnaprasad Thirunarayan, Ramakanth Kavuluru, Amit P. Sheth, Randy S. Welton, Jyotishman Pathak: Knowledge-aware Assessment of Severity of Suicide Risk for Early Intervention. WWW 2019: pp. 514-525, 2019.

Pranav Maneriker, Nikhita Vedula, Hussein S. Al-Olimat, Jiayong Liang, Omar El-Khoury, Ethan Kubatko, Desheng Liu, Krishnaprasad Thirunarayan, Valerie Shalin, Amit Sheth, Srinivasan Parthasarathy: A Pipeline for Disaster Response and Relief Coordination, SIGIR 2019 Demo Paper, 4 pages, 2019.

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Amelie Gyrard, Manas Gaur, Krishnaprasad Thirunarayan, Amit Sheth and Saeedeh Shekarpour: Towards a Personalized Healthcare Knowledge Graph (Position Paper), *First Intl. Workshop on Contextualized Knowledge Graphs (CKGs)*, (Co-located with ISWC-2018), 4 pages, 2018.

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Grants and Contracts

Deep Learning and Knowledge-empowered Event-Centric Multimodal Situational Data Analysis, $50,855 Sponsor: NSF-IUCRC Center for Surveillance Research. Duration: 9/01/2019 - 08/31/2020. PI: K. Thirunarayan. *Grant Number/Account Number* : WSU#6-69871

(AMENDED) kHealth: Semantic Multisensory Mobile Approach to Personalized Asthma Care, $295,924, Sponsor: NIH. Duration: 07/01/2018 to 08/31/2021. PI: K. Thirunarayan. *Grant Number/Account Number* : 15R01 HD087132-03 Revised/WSU#6-70162

(AMENDED) EDarkTrends: Monitoring Cryptomarkets to Identify Emerging Trends of Illicit Synthetic Opioids Use, $184,658, Sponsor: NIH/NIDA. Duration: 06/01/2018 to 05/31/2020. PI: K. Thirunarayan. *Grant Number/Account Number* : 5R21DA044518-02 Revised/WSU#6-XXXXX

(ORIGINAL) kHealth: Semantic Multisensory Mobile Approach to Personalized Asthma Care, $938,725, Sponsor: NIH. Duration: 07/01/2016 to 06/30/2019. PI: A. Sheth. Co-PI: K. Thirunarayan, T. Banerjee. *Grant Number/Account Number* : 1 R01 HD087132-01/WSU#6-70162

Modeling Social Behavior for Healthcare Utilization in Depression, $29,958 Sponsor: NIH (Supplement). Duration: 7/01/2018 - 06/30/2019. PI: Jyotishman Pathak (Cornell), A. Sheth Co-PI: K. Thirunarayan. *Grant Number/Account Number* : 1 R01 MH105384-01A1 / WSU#6-70029

Medical Information Decision Assistance and Support, $25K + $25K (Option), Sponsor: ONR/Milcord. Duration: 07/06/2015 to 05/06/2016 and 05/07/2016 to 11/06/2016 PI: K. Thirunarayan Co-PI: A. Sheth. *Grant Number/Account Number* : WSU#6-69829

TWC SBE: Medium: Context-Aware Harassment Detection on Social Media, $925,104, Sponsor: NSF. Duration: 09/01/2015 to 08/31/2018. PI: A. Sheth. Co-PI: K. Thirunarayan, V. Shalin. *Grant Number/Account Number* : WSU#6-69841

TWC SBE: Medium: Context-Aware Harassment Detection on Social Media, $16K, Sponsor: NSF-REU. Duration: 09/01/2015 to 08/31/2018. PI: A. Sheth. Co-PI: K. Thirunarayan, V. Shalin. *Grant Number/Account Number* : WSU#6-69841

Hazards SEES: Social and Physical Sensing Enabled Decision Support for Disaster Management and Response, $1,975,000, Sponsor: NSF. Duration: 08/15/2015 to 07/15/2019. PIs: S. Parthasarthy (OSU), A. Sheth. Co-PI: D. Liu (OSU), E. Kubatko (OSU), K. Thirunarayan, V. Shalin. *Grant Number/Account Number* : 1520870/ WSU#6-69835

Modeling Social Behavior for Healthcare Utilization in Depression, $1,934,525, Sponsor: NIH. Duration: 10/01/2015 - 06/30/2019. PI: Jyotishman Pathak (Cornell), A. Sheth Co-PI: K. Thirunarayan, T. Banerjee, W. V. Bobo (Mayo), N. Shah (Mayo), L. J. Rutten (Mayo), J. B. McCormick (Mayo), G. Simon (Mayo). *Grant Number/Account Number* : 1 R01 MH105384-01A1 / WSU#6-70029

Semantic Web-based Data Exchange and Interoperability for OEM-Supplier Collaboration, $89,736, 7/1/2014 to 9/1/2015, Sponsor: Pratt & Whitney. PI: K. Thirunarayan Co-PI: A. Sheth. *Grant Number/Account Number* : WSU#6-69553

Travel Grant for attending *IMA Hot Topics Workshop on Uncertainty Quantification in Materials Modeling*, $700, 2015.

Trust Networks: Semantics, Reliability, and Security. $31K. WPAFB/AFRL Sensors Directorate, Summer 2014. Sponsor: ASEE/SFFP. PI: K. Thirunarayan

Trending: Social media analysis to monitor cannabis and synthetic cannabinoid use. $506,725.00 (First year) (Total: $1.6 million), 09/01/2014 to 08/31/2017. Sponsor:NIH/NIDA. PI: Raminta Daniulaityte. Co-PIs: Robert Carlson, Krishnaprasad Thirunarayan, Amit Sheth, and Ramzi Nahhas *Grant Number/Account Number* : WSU#669557/669558

Federated Semantic Services Platform for Open Materials Science and Engineering, $550K, 2013-2016. Sponsor: DoD-AFRL via BAA-10-08-RIKA. PI: A. Sheth Co-PI: K. Thirunarayan, R. Srinivasan. *Grant Number/Account Number* : WSU#6-69197

AFRL/RX Materials Database Knowledge Discovery and Data Mining (KDDM), $190K, 2013-2014, Sponsor: Alion Science and Technology/DTIC. PI: A. Sheth Co-PI: K. Thirunarayan, R. Srinivasan. *Grant Number/Account Number* : WSU#6-69179

kHealth enabled Health Monitoring, Epidemiology, and Public Health Research, $20K, 2013-2014. WSU Research Initiation. *PI*: A. P. Sheth, *co-PI*: K. Thirunarayan.

Trusted Semantic Sensor Web to Support Decision Making over Massive Amounts of Sensor and Social Data, $400K, 2011-2013. AFRL/Riverside Research. *PI*: A. P. Sheth, *co-PI*: K. Thirunarayan. *Grant Number/Account Number* : WSU#6-68513

Live, Virtual, and Constructive : Sensor Integration for Data Fusion in Operations and Training (LVC SIDFOT), $56K+, 2011-2012. AFRL/Ball Aerospace. *PI*: A. P. Sheth, *co-PI*: K. Thirunarayan. *Grant Number/Account Number* : WSU#6-68533

Understanding Anomalies and Attacks in Sensor Networks to Explore Techniques for their Prevention and Mitigation, $20K+, AFRL/ASEE-SFFP 2011, *PI*: K. Thirunarayan.

Trusted Semantic Sensor Web - Phase I, $148K + $29K, 2010. AFRL/SAIC. *PI*: A. P. Sheth, *co-PI*: K. Thirunarayan. *Grant Number/Account Number* : WSU#6-67320/6-67599

Spatio-Temporal-Thematic Queries of Semantic Web Data: A Study of Expressivity and Efficiency, $120K + $16K, 2008-2010. NSF. *PI*: A. P. Sheth, *co-PI*: K. Thirunarayan. *Grant Number/Account Number* : WSU#6-67426/6-67679

Electronic Patient Care Tracking (EPCT), $40K, Summer 2009, WSU TecÊdge Academic Pipeline, *PI*: Jack Jean, *co-PI*: K. Thirunarayan, B. Wang, and Y. Pei. *Grant Number/Account Number* : WSU#6-67659.

Trusted Semantic Sensor Web, $300K, 3/2009-2/2010. AFRL/SAIC. *PI*: A. P. Sheth, *co-PI*: K. Thirunarayan. *Grant Number/Account Number* : WSU#6-67320

Ontology and Semantic Aided Human Cognition Knowledge Discovery, $400K, 4/2009-9/2010. AFRL/H. Jackson Foundation. *PI*: A. P. Sheth, *co-PI*: K. Thirunarayan. *Grant Number/Account Number* : WSU#6-67319

Trusted Semantic Sensor Web, $126K, 2008-2009. AFRL/SAIC. *PI*: A. P. Sheth, *co-PIs*: K. Thirunarayan and B. Wang. *Grant Number/Account Number* : WSU#6-67320

Travel Grant for attending NSF Workshop *Teach Scheme - Reach Java*, $1000, 2009.

AFRL-DAGSI Ohio Student Faculty Graduate Fellowship Program. *PI*: K. Thirunarayan (with Joshua K. Pschorr), $57,767 + $7,221, 2008-2009. *Grant Number/Account Number* : WSU#6-67275

Travel Grant for attending NSF Workshop *Teach Scheme - Reach Java*, $1000, 2007.

Travel Grant for attending *European Semantic Web Conference*, $1000, 2007.

Metadata for Timelining Events, $15K, daytaOhio-LexisNexis, 2007. *PI*: K. Thirunarayan. *Grant Number/Account Number* : WSU#6-66496

Metadata for Timelining Events, $78,724, WCI-daytaOhio-LexisNexis, 2006. *PI*: K. Thirunarayan. *Grant Number/Account Number* : WSU#6-66496 (Plus, $25K for equipment from daytaOhio)

Information Extraction from Semi-Structured Documents, $39K, AFRL-WBI (SKM), 2004-2005. *PI*: K. Thirunarayan. *Grant Number/Account Number* : WSU#6-65785

Information Extraction from Semi-Structured Documents, $65K, AFRL-WBI (SKM), 2003-2004. *PI*: K. Thirunarayan. *Grant Number/Account Number* : WSU#6-65487

Computer-Assisted Document Interpretation Tools, $25K, NSF SBIR Phase IIB with Cohesia Corporation, 2002. *WSU-PI*: K. Thirunarayan. *Grant Number/Account Number* : DMI-0078525/WSU#6-65304

Computer-Assisted Document Interpretation Tools, $75K, NSF SBIR Phase II with Cohesia Corporation, 2000-2002. *WSU-PI*: K. Thirunarayan. *Grant Number/Account Number* : DMI-0078525/WSU#6-64641

Mixed-Signal Modelling for System Level Simulation, $50K, AFRL/DAGSI, 2001-2003. *WSU-PI*: K. Thirunarayan. *Proposal Number/Account Number* : WSU#01-279-10/WSU#6-65006

Advanced Global Information Methodology for Improved C4ISR System Integration, $53K, AFRL/DAGSI, 1999. *WSU-PI*: K. Thirunarayan. *Account Number* : WSU#99-396-10/WSU#6-64099

Computer-Assisted Document Interpretation Tools, $21K, NSF SBIR Phase I with Renaissance Engineering, 1999. *WSU-PI*: K. Thirunarayan. *Grant Number/Account Number* : DMI-9860316/WSU#6-64001

Java interface to a VHDL/VHDL-AMS parser, $17K, WPAFB contract, 1997. *PI*: K. Thirunarayan.

Microsoft Instructional Lab Grant for software licenses valued at $48,207. The software includes copies of Visual J++, Microsoft Office 97 Professional and Windows NT. (Co-Is: P. Bergstein, P. Mateti, K. Meyer, and S. Narayanan.)

Microsoft Instructional Lab Grant for software licenses valued at $19,450. The software includes 50 copies each of Visual C++, Microsoft Office Professional and Windows 95. (with: S. Narayanan and K. Meyer.)

VHDL-93 Parser in SWI-Prolog: A Basis for Design Query System, $25K, Air Force Office of Scientific Research (AFOSR), 1995. *PI*: K. Thirunarayan. *Proposal/Account Number* : WSU#95-102-10/WSU#662800 (The parser conforms to IEEE 1076-1993 Standard of VHDL.)

Implementation of an Efficient Inheritance Reasoner, Research Initiation Award of $51K, National Science Foundation (NSF), 1990-92. *Program*: Knowledge Models and Cognitive Systems. *PI*: K. Thirunarayan. *Grant Number*: IRI-9009587

The Design and Implementation of an Inheritance Reasoner, Research Challenge Award of $20K, The State of Ohio, 1989-91. *PI*: K. Thirunarayan. *Account Number* : WSU#660818

Patent Application

U.S. Provisional Patent application Serial No. 61/863,173 (Atty. Dkt. No. 108231.8PRO) entitled "SEMANTIC PERCEPTION" and filed August 7, 2013.

Teaching

- CS3190 Programming Language Workshop in Scala (1 credit)
- CS3190 Programming Language Workshop in Python (1 credit)
- CS3180/5180 Comparative Languages
- CS7100 Advanced Programming Languages
- CS7120 Functional and Logic Programming
- CS7200 Design and Analysis of Algorithms
- CS7800 Information Retrieval

- CS340 Programming Language Workshop in Java (1 credit)
- CS340 Programming Language Workshop in C# (1 credit)
- CS340 Programming Language Workshop in Python (1 credit)
- CS466/666 Formal Languages and Automata
- CS480/680 Comparative Languages
- CS499 Introduction to Information Retrieval
- CS774 Logic Programming
- CS776 Functional Programming
- CS780 Compiler Design and Construction I
- CS781 Compiler Design and Construction II
- CS784 Programming Languages
- CS707 Information Retrieval
- CS884 Advanced Topics in Programming Languages
- CEG 860 Object-Oriented Programming

- CEG 790 Collaborative Design of a System-on-a-Chip
- CS/CEG 891 Knowledge Representation and Reasoning : Linear Algebra Applications
- CS 891 Information Retrieval, Extraction and Management
- CS799 Special topics in AI: Knowledge Representation and Reasoning
- Java : Platform Independent Software Technology
- *Also taught*: CS141, CS142, CS240, CS241, CS242, etc

Online Material URL

`http://cecs.wright.edu/~tkprasad`

Doctoral Students with Dissertation Title

(Additionally, on 39 Ph.D. Dissertation Committees
`https://etd.ohiolink.edu/apexprod/rws_olink/r/1501/6` since 2008)

- Hussein S. Al-Olimat: "*Knowledge-Enabled Entity Extraction*". 2019. (Now with Tempus, Chicago, IL). (Winner of Graduate Student Excellence Award for Ph.D. in CSE.)
- Kalpa Gunaratna: "*Semantics based Summarization, Alignment, and Utilization of Semi-structured Data on the Web* ". 2017. (Joint with A. Sheth) (Now with Samsung Electronics, San Francisco, CA).
- Pramod Anantharam: "*Knowledge-empowered Probabilistic Graphical Models for Physical-Cyber-Social Systems*", 2016. (Joint with A. Sheth) (Offered: 'Eric and Wendy Schmidt Data Science for Social Good' Fellowship for Summer 2014) (Now with Bosch USA, Pittsburgh, PA). (Winner of Graduate Student Excellence Award for Ph.D. in CSE.)
- Chad Arnold: "*Combating Integrity Attacks in Industrial Control Systems*", 2014. (Joint with J. Butts) (Now with NASIC, Dayton, OH).
- Trivikram Immaneni: "*A Hybrid Approach to Retrieving Web Documents and Semantic Web Data*", 2008. (Now with Globality, Inc, Palo Alto, CA. Formerly with ProofPoint, Disney Mobile `http://tapulous.com` and `http://technorati.com`) (Winner of Graduate Student Excellence Award for Ph.D. in CSE.)
- Stephen P. Carl: "*A Framework for Experimentation in Memory Management Systems*", 2005. (Tenured Associate Professor, `http://scarl.sewanee.edu/`)

- Kevin Cleereman: "*Programming Language Support for Safe Memory Management*. (Formerly with `WPAFB-AFRL: Sensors Directorate`) (Unfinished)

Masters' Students with Thesis Title

(Additionally, on 44 MS Thesis Committees
`https://etd.ohiolink.edu/apexprod/rws_olink/r/1501/6` since 2004)

- Michael Partin: "*Scalable, Pluggable, and Fault Tolerant Multi-Modal Situational Awareness Data Stream Management Systems*". (Co-Advisor)
- Shruti Kar: "*Multi-scale and Multi-modal Streaming Data Aggregation and Processing for Decision Support During Natural Disasters*.
- Venkatesh Edupuganti: "*Harassment Detection on Twitter using Conversations*".
- Rajeshwari Kandakatla: "*Identifying Offensive Videos on YouTube*".
- Jacob Ross: "*Features for Ranking Tweets Based on Credibility and Newsworthiness*".
- Abhiram Tateneni: "*Temporally Biased Search Result Snippets*".
- Dharan Althuru: "*Distributed Local Trust Propagation Model and its Cloud-based Implementation.*". (Now with eBay)
- Joshua Pschorr: "*SemSOS: An Architecture for Query, Insertion, and Discovery for Semantic Sensor Networks*". (Winner of Graduate Student Excellence Award for M.S. in CS.) (Now with Amazon)
- Mastan Vali Shaik: "*Design and Implementation of Timeline Application for News Documents*". (Now with SuccessFactors (SAP))
- Venkatkalyan Potturi: "*Implementation for a Coherent Keyword-Based XML Query Language*".
- Sylvia George: "*Word Correlation Assistant for Query Refinement*". (Now with PTC)
- Dhanya Ravishankar: "*Document Indexing and Semantic Search*". (Winner of Graduate Student Excellence Award for M.S. in CS.)
- Nalini Pitchika: "*Issues and Techniques for Information Management*".
- Vijayasree Jonnalagadda: "*Extraction of Tabular Data from Heterogeneous Documents*".
- Jun Lu: "*Dependency Analysis and VHDL-AMS Programs Paritioning*".

- Prasanna Soundarapandian: "*Information Extraction for Reorganizing Specifications*". (Now with ABAQUS)
- Chris Kinzig: "*Summarizing Data using Compact Decision Rule sets*". (Now with Ball Aerospace)
- Tianrong Hu: "*Java-based VHDL-AMS Browser*".
- Laura DeBrock: "*A VHDL-93 Hardware Description Browser*".
- Robert Eastham: "*Proof Strategies for Digital Circuit Verification*".
- Mallikarjuna Mitnala: "*A Language for Temporal Reasoning*".
- Zhengjun Guo: "*Object-Oriented Database: A Survey and an X-Window Based Interface*".
- Yaqiong Zhang: "*Expressive Nonmonotonic Inheritance Networks*".
- Xixi Yang: "*Integrating Deductive and Abductive Reasoning*".
- Ross Rannells: "*Abduction: A Survey and a Prolog Interpreter*".
- Heather Kolano: "*Expression Parsing and Code Generation*". (Recent Undergraduate Honors Student)

Undergraduate Students with Thesis Title

- Brian Diekelman: "*Structural Typing on the Java Virtual Machine with* `invokedynamic`", 2012. (Winner of Undergraduate Research Support Grant for Fall 2012.) (Winner of Undergraduate Student Excellence Award for B.S. in CEG) (now with GoDaddy)

Professional Membership

Association	Status	Dates
Dayton Think Tank	Current	2017 – present
American Association for Artificial Intelligence (AAAI)	Member	1989 – 2003, 2013-2014
Association for Computing Machinery (ACM + SIGPLAN)	Member	1990 – 2012
IEEE and IEEE Computer Society	Member	1992 – 2012

Professional Service (Each Multiple Years)

Reviewed Research Proposals for the *NSF*, *NIH*, *AFRL*,*ASEE*, and *NSERC* including for AF-SFFP and NSF GRFP. (For example, served on NSF Panels related to CS/EE in CISE and NIH Study Sections related to BCHI and CDMA.)

Reviewer for: Indian-Israeli Joint Research Cooperation, Ministry of Science, Technology and Space, Israel and India.

Reviewer for: Chilean National Science and Technology Commission.

Reviewer (Default - Multiyear) for:

- IEEE Transactions on Concurrency and Computation: Practice and Experience
- International Journal of Semantic Web and Information Systems (IJSWIS)
- IEEE CogSIMA Conference
- International Semantic Web Conference (ISWC)
- Symposium of Logic Programming
- Conference on the Principles of Database Systems
- North American Conference on Logic Programming
- International Conference on Logic Programming
- Florida AI Research Society Conference
- IEEE Symposium on Collaborative Technologies
- Foundations of Software Technology and Theoretical Computer Science
- Computer and Mathematics with Applications
- IEEE International Conference on Tools with Artificial Intelligence
- International Conference on Information Systems and Engineering
- Indian International Conference on AI
- Annual ACM Southeast Conference,
- Intl. Conf. on Industrial and Engineering Applications of AI and Expert Systems
- Journal of Logic Programming
- IEEE Transactions on Systems, Man, and Cybernetics
- International Journal on Artificial Intelligence Tools
- International Journal of Computers and their Applications
- Journal of Engineering and Computer Innovations
- Journal of Internet and Information Systems
- Journal of Intelligent Systems (Special Issue: Web-based IR)

- International Journal of Pattern Recognition and Artificial Intelligence
- IEEE Concurrency
- IEEE Software
- IEEE Computer
- IEEE Internet Computing
- Journal of Data and Knowledge Engineering
- International Journal of Intelligent Information and Database Systems
- Journal of Applied Intelligence
- Journal of Web Semantics
- Semantic Web Journal
- Sensors Journal
- Sensor Networks Journal
- Journal of Computer Languages, Systems and Structures
- Applied Soft Computing
- Journal of Security and Communication Networks
- IEEE Internet of Things Journal
- ACM Journal of Data and Information Quality
- IEEE World Forum on Internet of Things
- AACL-IJCNLP 2020
- AACL 2020 conference (The Annual Conference of the Asia-Pacific Chapter of the Association for Computational Linguistics)
- 8. CySoc 2020 - International Workshop on Cyber Social Threats at ICWSM 2020
- 9. 2021 International Workshop on Artificial Intelligence and Big Data Analytics - Emerging Opportunities, Challenges, and Solutions

Session Organizer for a special track on

- ""Disaster Response and Recovery" at NSF Convergence Accelerator Planning Symposium for AI for Disaster Management - Mitigation, Preparedness, Response, Recovery, Resiliency, 2019.
- "Semantic Web" at Indian International Conference on Artificial Intelligence, 2005.
- "Semantic Web and Information Retrieval" at Indian International Conference on Artificial Intelligence, 2007 and 2009.

Member of Organizing Committee for "NSF EarthCube Domain End-User Workshop: Science-Driven Cyber-infrastructure Needs in Solar-Terrestrial Science", 2014.

Session Chair for

- "Software Engineering" at the IEEE National Aerospace and Electronics Conference.
- "Web Services and Service-based Approaches" at the International Conference on Information Systems and Engineering,
- "Intelligent Querying" at International Conference on Applications of Natural Language to Information Systems.
- "Semantic Web and Information Retrieval" at Indian International Conference on Artificial Intelligence.
- "Information Management + Retrieval + Databases" at Information and Knowledge Engineering Conference.

Program Committee Member (Default - Multiyear) for:

- Florida AI Research Society Conference (FLAIRS)
- International Conference on Information Systems and Engineering
- Indian International Conference on AI (IICAI) (Also, on Best Paper Award Committee.)
- Canadian Semantic Web Working Symposium.
- Intl Conf. on Applications of Natural Language to Information Systems (NLDB).
- International Workshop on Ontologies and Information Systems for the Semantic Web.
- Conference on Information and Knowledge Management (CIKM).
- International Symposium on Methodologies for Intelligent Systems (ISMIS)
- The Joint International workshop on Metamodels, Ontologies, Semantic Technologies, and Information Systems for the Semantic Web
- International Workshop on Semantic Web and Provenance Management (SWPM)
- Workshop on Trust and Privacy on the Social and Semantic Web
- Workshop on User Profile Data on the Social Semantic Web
- ACM SAC Semantic Web and Application (SWA) track
- WoLE 2012 Web of Linked Entities (Collocated with ISWC).
- Second International Workshop on Semantic Web and Provenance Management (Colocated with ESWC)
- The International Conference on Collaboration Technologies and Systems (CTS)

- 2nd International Workshop on Analytics for Cyber-Physical Systems (ACS-2013)
- The First International Workshop on the role of Semantic Web in Literature-Based Discovery, Co-located with the 6th International Conference on Bioinformatics and Biomedicine (IEEE BIBM Workshop 2012)
- 1st International Workshop on Cybersecurity of Online Social Networks (CSOSN 2012)
- Workshop on Management and Interoperability of Open Environmental Data
- International Semantic Web Conference (ISWC)
- The Second IEEE/ASE International Conference on Big Data Science and Computing
- 1st International Workshop on Semantics for Big Data on the Internet of Things (SemBIoT 2014) Co-located with IEEE Big Data.
- IEEE BigData 2014 Workshop on Enterprise Big Data Semantics and Analytics Modeling.
- International Conference on Contemporary Computing
- International Workshop on Data Analytics for Dynamic Environments
- International Workshop on Summarizing and Presenting Entities and Ontologies
- International Workshop on Semantic Technologies for Information-Integrated Collaboration
- International Conference on Ontologies, DataBases, and Applications of Semantics (ODBase)
- WWW 2017 : International World Wide Web Conference (Semantic and Knowledge Track)
- International Workshop on Summarizing and Presenting Entities and Ontologies (SumPre)
- AAAI 2016 Fall Symposium on Privacy and Language Technologies.
- International Workshop on Semantic Technologies for Information-Integrated Collaboration (STIIC)
- International Conference on Contemporary Computing (IC3)
- IEEE International Multi-Disciplinary Conference on Cognitive Methods in Situation Awareness and Decision Support (IEEE CogSIMA)
- EYRE '18 (1st and 2nd International Workshop on EntitY REtrieval).
- EYRE '20 (International Workshop on EntitY Retrieval and lEarning).
- CKG2018/19 (1st and 2nd International Workshop on Contextualized Knowledge Graphs)

- ICIIT 2018 (Third International Conference on Intelligent Information Technologies)
- International Conference on Contemporary Computing (IC3).
- WWW 2018: 27th International World Wide Web Conference, 2018 (Web Mining and Content Analysis)
- The Web Conference (WWW)
- 3rd Biennial International Conference on Nascent Technologies in Engineering (ICNTE 2019) (Advisor)
- PAL: Privacy-Enhancing Artificial Intelligence and Language Technologies (Co-located with AAAI Spring Symposium)

Proceedings Chair and Co-Editor of:

- *The Semantic Web - ISWC 2015, 14th International Semantic Web Conference*, LNCS XXXX, Springer-Verlag (Heidelberg), October 2015.
- *The Semantic Web - ISWC 2009, 8th International Semantic Web Conference*, LNCS 5823, Springer-Verlag (Heidelberg), October 2009.
- *The Semantic Web - ISWC 2008, 7th International Semantic Web Conference*, LNCS 5318, Springer-Verlag (Heidelberg), October 2008.

Book Reviewer:

- in the area of *Programming Languages and Compilers* for Morgan Kaufmann, John Wiley, McGraw Hill, Addison-Wesley, Prentice Hall, Taylor and Francis Publishers, etc.
- in the area of *Databases* for Addison Wesley.

Invited Talks/Tutorials:

- Hussein Al-Olimat, Amir Hossein Yazdavar, Krishnaprasad Thirunarayan, Amit P. Sheth: Location Extraction and Georeferencing in Social Media: Challenges, Techniques, and Applications, *15th International Conference on Information Systems for Crisis Response and Management* (ISCRAM '18 Geo-tutorial)
- Semantics-enhanced Cyberinfrastructure for ICMSE : Interoperability, Analytics, and Applications, June 2018. (Invited Presentation) `https://www.slideshare.net/knoesis/seman`
- "Big Data and Trust: A Short Course", Veermata Jijabai Technological Institute (VJTI), Mumbai, India. (Dec 26 - Dec 31, 2016)
- "Big Data Challenges and Trust Management: A Personal Perspective", CTS 2016. `https://www.slideshare.net/knoesis/big-data-and-trust-cts2016`
- "Trust Management: Multimodal Data Perspective", CTS 2015. `https://www.slideshare.net/kno` (71K views as of 512020)

- "Value-Oriented Big Data Processing with Applications", CTS 2015.
- "Semantic Technologies for Big Science and Astrophysics" (with Amit Sheth) at EarthCube End-User Workshop: Science-Driven Cyberinfrastructure Needs for Solar-Terrestrial Research. (2014)
- "Big Data and Smart Healthcare" for Honors Institute Symposium on Visions of the Future. (2014)
- Our CSCW paper "Cursing in English on Twitter" (with Wenbo Wang, Chen Lu, Amit Sheth) had multiple media mentions including Fast Company and Time.com.
- "Semantics-empowered Big Data Processing", University of Dayton. (2013)
- "Spatial Semantics enhanced Geoscience Interoperability, Analytics, and Applications", Workshop on Geospatial Semantics. (2013)
- Attended Warren Symposium 2012 upon invitation and hosted GeoVoCamp 2012.
- "Trust Networks", CTS-2012, Denver, Co. (2012)
- "Trust Networks", IICAI-2011, Tumkur, India. (2011)
- "Trust Networks: Interpersonal, Social and Sensors", CTS-2011, Philadelphia, PA. (2011)
- "Trust Networks: Interpersonal, Social and Sensors", INFOTECH-2010, Dayton, OH. (2010)
- "Research in Semantic Web and Information Retrieval: Trust, Sensors, and Search", Keynote talk at the: *International Seminar on Artificial Intelligence and Applications* at GMR Institute of Technology, India (2009).
- "An Introduction to Model Theory for Knowledge Representers" (1990), at the Indian Institute of Science, Bangalore, India.
- "The Semantics of Programming Languages" (1991), at the Indian Institute of Science, Bangalore, India.
- "Information Extraction from Semi-Structured Documents" (2004), at the Indian Institute of Science, Bangalore, India.
- "Paradoxes: The Seeds of Progress" at the ACM Student Chapter Meeting at the Wright State University, Dayton, Ohio in 1990.

Chaired

1. Departmental Faculty Development Committee for two years.
2. University IT Committee for two years.
3. College Steering Committee for one year.
4. College Graduate Studies Committee for three year.

5. Departmental Colloquium Committee for three years.
6. Languages and Software Area Committee for three years.
7. Department Graduate Studies Committee for three years.
8. Department Graduate Admissions Committee for five years.
9. University Promotion and Tenure Appeals Committee for a year.
10. Faculty Search Committee.

Have served on:

University Committees: Library, Honors, Scholarships, Admissions, Graduate Council, Petitions, Information Technology, Classroom of the Future, Promotion and Tenure, Membership, Buildings and Grounds, Promotion and Tenure Appeals, and International Program Collaboration Committee (IPCC) for the Faculty Senate.

College Committees: Faculty Development, Steering, Graduate Studies, Due Process, Curriculum, Library, Petitions.

Department Committees: Admissions, Graduate Studies, Undergraduate, Ph.D., Colloquium, Faculty Development, CSE Website/Content Management Task Force, Faculty/Instructor/Chair Search Committees.

Served as a Judge for 1989 ACM East-Central Programming Contest. I also contributed problems to 1991 ACM East-Central Programming Contest Trials held at Wright State University.

Served as a Judge for 2009 ACM Programming Contest Trials held at Wright State University.

Guest Judge for the Poster Session at NAECON IEEE PACE (Professional Activities Committee for Engineers) Seminar, IEEE Dayton Section.

Selected Honors, Awards and Distinctions

Secured *first rank* in Central School, Vadodara in All India Higher Secondary School Examination (CBSE).

Secured *second rank* in my Bachelor of Technology (in Electrical Engineering) class at the Indian Institute of Technology, Madras.

Secured *first rank* in my Master of Engineering (in Computer Science) class at the Indian Institute of Science, Bangalore.

Adv. GRE (Engr.) Score (1982) = **920**. Adv. GRE (CS) Score (1984) = **920**.
(99th percentile started at **840** for both Subject Areas.)

Awarded American Association of Artificial Intelligence Scholarship for presenting two papers at the *Eleventh International Joint Conference on Artificial Intelligence* (IJCAI-89), at Detroit, Michigan. Also Invited to participate (awarded Honorarium) for *Workshop for Defeasible Reasoning with Multiple Inheritance and Specificity*, at St. Louis, Missouri.

The work on *circumscription* has been cited in papers appearing in the Journal of the ACM (by Kolaitis and Papadimitriou), the Journal of Logic Programming, the Proceedings of the AAAI, etc and in books on Nonmonotonic Reasoning. The work on *Parallel Term Matching* has been cited in papers in the SIAM Journal of Computing (by Dwork, Kanellakis and Stockmeyer). The work on *Inheritance* has been cited in papers appearing in the Artificial Intelligence Journal, the Proceedings of AAAI and IJCAI, the Journal of Computer and Systems Science, the Handbook of Logic Programming and Artificial Intelligence (by Horty) etc, and in the ACM Award Winning Doctoral Dissertation (by Geffner).

The work on *Abduction in Logic Programming* referenced in US Patent number: "5812994" and titled "Apparatus and method for data processing and/or for control" from Canon (Sept. 22, 1998).

Google search on "Comparative Languages" yields my *CS480/CS680 Comparative Languages* course web page at rank 1 (as of October 5, 2011).

Google search on "Attribute Grammars" yields my lecture on the first page. (It was at *rank 2* as of April 2008 (second entry on the first page following the Wikipedia article)).

`http://web1.cs.wright.edu/~tkprasad/courses/cs784/L167AG.ppt`

Towards Geocoding Spatial Expressions (Vision Paper) won second place CCC Blue Sky Idea Award at ACM SIGSPATIAL 2019. (Authors: Hussein Al-Olimat, Valerie Shalin, Krishnaprasad Thirunarayan and Joy Sain)

MobiCloud won the Technology Award at 2012 Fukuoka Ruby Award Competition (Collaborators: Ajith Ranabahu, Amit Sheth, E. Michael Maximilien, and K. Thirunarayan)

Research Poster by my advisee Pramod Anantharam: "Dynamic Update of Multimodal Schedule Networks for Accurate Commuter Recommendation" won Award at IBM IRL, New Delhi, Summer 2012.

Winner of *Achievement and Service Award* at Indian International Conference on Artifical Intelligence, 2005, 2007, 2009, and 2011.

Winner of *Recognition for Outstanding Service to Children* by YGIC Parent Forum, 2008. President of YGIC, 2011.

Winner of 2007-2008 College of Engineering and Computer Science *Outstanding Faculty Award*.

Winner of 2011 Fritz J. Russ Award from Dayton Section of the IEEE.

Winner of 2014-2015 College of Engineering and Computer Science *Outstanding Faculty Award*.

Nominated for 2015-2016 College of Engineering and Computer Science *Outstanding Researcher Award*.

Other Selected Service

The *Compiler Generator based on Attributed Translation Grammar* (which also automates Wirth's scheme of error recovery) written as a part of my Master's Thesis has been used as a tool in Compiler Construction classes at the Indian Institute of Science, Bangalore.

The *IEEE 1076.1 Standard of VHDL Design Browser* with parser in SWI-Prolog and GUI in Java 1.1 that runs on UNIX and Windows95, and the older *VHDL-93 Hardware Description Browser* in SWI-Prolog and Tcl/TK are publically available from my home page

`http://cecs.wright.edu/~tkprasad/selectedprojects.html`

Contributed to "Tutorial on HOL-90".

Functional Programming Notes (especially lectures on Recursive Definitions involving Combinatorial Functions and ADT specs) shared on PLT-Scheme listserv.

`http://cecs.wright.edu/~tkprasad/courses/cs776/cs776.html`

`http://cecs.wright.edu/~tkprasad/courses/cs784/cs784.html`

Taught *Astronomy and Vedic Mathematics* to middle school kids on behalf of Youth Group for Indian Culture (YGIC).

`http://cecs.wright.edu/~tkprasad/assortedbookmarks.html`

(Recognition: `http://uni5.co/index.php/en/k-12-school-resources-2/resource-for-school-stud`

Developed informal lectures on Logic too.

OUTREACH: Helping with Science Olympiad on *Astronomy* and *Reach for the Stars*, and supported Robotics and CyberPatriot programs at Dayton Regional STEM School

OUTREACH: Invited Speaker at HONOR SEMINARS of Metropolitan Dayton on *Astronomy from Scratch : Grasping the Scale*

Explored Joint Degree programs with GMRIT, India.