VITA – Ted Lehr

Name: Ted Lehr **Title**: Senior Lecturer

Educational Background

Ph.D., 1990, *Carnegie-Mellon University*, Pittsburgh, PA, Electrical and Computer Engineering, "Compensating for Perturbation of Asynchronous Computations by Software Performance Monitors."

MS, 1985, *Carnegie Mellon University*, Pittsburgh, PA, Electrical and Computer Engineering, "Implementation of a Production System Machine."

BSBA, 1983, *Bucknell University*, Lewisburg, PA, Electrical Engineering and Philosophy

Professional Experience

Position	Entity	Dates
Senior Lecturer	Computer Science Dept, Texas State University	2022 - present
Adjunct Lecturer	Computer Science Dept, Texas State University	2014 - 2022
IT Data Architect	City of Austin, Texas: Communications and Technology Mgnt & Management Services (City Manager's Office)	2014 - 2022
Senior Software/Research/Support Engineer	CA Technologies (acquired Hyperformix),	2009 – 2013
Sr Project Manager	Hyperformix	2006 – 2009
Vice President, Development	Hyperformix/SES	1999 – 2006
Intel Project Manager	SES	1997 – 1999
Advisory Software Engineer	IBM	1990 - 1997
Intern	Honeywell Computer Sciences Center	1985
Intern	Sperry Corporation	1984

Patents

1. US Patent 9,692,663: "Methods, Systems, and Computer Program Products for User Side Optimization of Acquisition of Virtual Resources," (tools for users to optimize their selection and operation of virtual machines), Ted Lehr and others, June, 2017.

2. US Patent 7,734,775: "Method of semi-automatic data collection, data analysis, and model generation for the performance analysis of enterprise applications," (collecting data on applications and automating the creation of models to predict their performance) Ted Lehr and others, June 2010.

2. US Patent 7,596,546: “Method and apparatus for organizing, visualizing and using measured or modeled system statistics,” (useful ways to capture and present system performance information) Ted Lehr and others, Hyperformix, September 2009.

3. US Patent 7,290,048: “Method of semi-automatic data collection, data analysis, and model generation for the performance analysis of enterprise applications,” (useful ways to capture and present application performance information) Theodore Lehr and others, Hyperformix, October 2007.

4. US Patent 6,741,869: “Radio-like appliance for receiving information from the internet,” (an internet appliance for listening to radio signals) Theodore F. Lehr, IBM Corp. May, 2004

5. US Patent 5,898,873: “System and Method for Visualizing System Operation Trace Chronologies,” (a Ghant chart like representation of inter-related system traces) Theodore F. Lehr, IBM Corp, 1999

6. US Patent 5,777,622: “Method for Identifying Invisible Objects Ordered in a Tree-like Data Structure By Finding Adjoining Hidden Objects” (method for indicating to users that objects are in the view that are too small to display at the current resolution) Theodore F. Lehr, IBM Corp, 1998

7. US Patent 5,649,085: “Method and system for storing and displaying system operation traces with asynchronous event pairs,” (method for displaying asynchronous activity spawned by synchronous activity) Theodore F. Lehr, IBM Corp, July, 1997

Teaching Awards and Honors:

1. 2015: Outstanding Part-time Faculty Award, Texas State University
2. 2017, 2021: “Favorite Professor” – Alpha Chi Omega honor society, Texas State University

Invited Talks, Lectures, Presentations and Interviews

1. 12/2021: Panelist: Participatory Budgeting, 17th Conference on Web and Internet Economics, On-line conference
2. 11/2021: News Article with acknowledgement of foundational work: Collaborative Project Promises Equitable Transit in Austin, Govtech.com
3. 11/2021: Presenter: Intelligent Infrastructure of the Future, Austin Design Week; On-line conference.
4. 6/2021: Presenter, Re-imagining public safety for large crowd events, City Innovate STIR Labs.
5. 6/2021: Interview: “Texas State Researcher joins Austin’s Smart City Team & Governor’s Innovation Task Force during COVID-19,” Texas State Newsroom
6. 4/2021: Host, Public Safety Infrastructure Technology Site Tour, City of Austin.
7. 3/2021: Interviews (several) Example: “Austin uses virtual reality to train first responders”, Smart City World
8. 3/2021: Panelist and Host: Digital Rights Conference, City Coalition for Digital Rights
9. 12/2020: Panelist for Speaker: “View from City Hall: Infrastructure, Data and Engagement,” Basics of Complex Modern Urban Functions and Characteristics, NATO Science and Technology Organization
10. 10/2020: Panelist: 2020 LinCP Forum: Future Proof; On-line
11. 6/2020: Panelist: EUCI Smart Cities and Utilities Conference 2020; On-line

12. 3/2020: Speaker: Harvard CRCS Workshop on AI for Social Impact, Cambridge, Massachusetts.
13. 2/2020: Organizer: UT-Austin Good Systems and the City of Austin workshop on AI for social good. Created 7 university – city AI collaborations.
14. 1/2020: Speaker: UT-Austin OLLI Seminar: "Artificial Intelligence for Community & City Good."
15. 12/2019: Panelist: "Industry Panel 6: Disruptive Technologies Towards the Smart City", GlobeComm2019, Waikoloa, Hawaii.
16. 10/2019: Letter to the Editor: "Zuckerberg's Plan for Free Speech on Facebook," The Wall Street Journal.
17. 6/2019: Presenter: "The Rights of Residents in an Artificially Intelligent Austin – Texas", Mechanism Design for Social Good Workshop, Phoenix, Arizona.
18. 6/2019: Speaker: "Virtual and Augmented Reality Platform for the Training of First Responders of the Ambulance Bus," 12th ACM International Conference on Pervasive Technologies Related to Assistive Environments, Rhodes, Greece.
19. 1/2019: Speaker: "Augmented and Virtual Reality in Public Safety Training," Harvard Smart Cities Innovation Accelerator, Las Vegas, Nevada
20. 12/2018: Panelist: IEEE Globecom, "Is 5G Coming to Rural Areas Any Time Soon?", Abu Dhabi, UAE.
21. 8/2018: Host: Open Data Meetup: "Applying Data For Health," City of Austin, Dell Medical School, University of Texas – Austin.
22. 4/2018: Panelist, "Data: What Is Important Now and What Should We Be Doing?", Harvard Smart Cities Innovation Accelerator, San Diego, CA
23. 3/2018: Panelist, "Smart Canada," SXSW discussion with Canadian representatives on how to help countries empower their citizens to collaborate and innovate.
24. 3/2018: Panelist, "Amplify Philly," SXSW discussion with City of Philadelphia officers on creating partnerships for using innovative Technologies.
25. 12/2017: "Responsive Communities: City Data Strategies: Efficacy and Ethics," Berkman Klein Center for Internet & Society, Harvard University, Cambridge, MA.
26. 11/2017: Dell TechHire Workforce Event, City of Austin Host. Welcomed and closed the ceremonies and events for bringing technology career opportunities for minority and low income residents.
27. 10/2017: Texas Mobility Summit 2.0, Presenter, Texas PAWR 5G status and Next Steps, Houston, Texas
28. 9/2017: IES 2017 Street and Area Lighting Conference, Keynote Speaker, 11, September, 2017, Austin, Texas
29. 9/2017: IEEE Innovation Summit in Health and Technology, Speaker, "Smart Health Care and Austin Ambition," 7, September, 2017, JJ Pickle Research Center, University of Texas, Austin.
30. 7/2017: "How Austin brought the human touch to smart city planning", Interview, Digital Trends, July, 2017.
31. 6/2017: Smart Cities Connect, Panelist – "City Spotlights: Network and Data," 25 – 27, June, 2017, Austin Convention Center, Austin, Texas.
32. 5/2017: Smart Cities Week, Panelist – "Breakthroughs in Artificial Intelligence … and How Your City Can Benefit," and "Dialog with Smart City Readiness Challenge Grant Winners," 8 – 9, May, 2017, Santa Clara Convention Center, Santa Clara, CA.
33. 4/2017: Smart Texas Revolution, Panelist – "The Power of Open Data and Civic Engagement," 20 – 21, April, 2017, Fair Park, Dallas, Texas.
34. 12/2016: Texas Mobility Summit, Panelist, City of Austin, 1 – 2 December, 2016, Center for Transportation Research, University of Texas, Austin, Texas.
35. 11/2016: Responsive Communities: The Future of IoT in Cities, "Public Values and Monetization," 4 November, 2016, Berkman Klein Center for Internet & Society, Harvard University, Cambridge, MA.

36. 9/2016: Smart Cities Week: "Making Sense: Building Capabilities and Infrastructure to Leverage Data for Change,", 27 – 29 September, 2016, Washington, DC., Meghan Cook, Jeff Merritt, Ted Lehr, Matthais Weis
37. 9/2016: Interview: Governing Institute Smarter Cities Guide, 20 – September 2016, City of Austin, Austin, Texas, Stephen Elkins, Ted Lehr by Hilary Berwick and Steve Towns
38. 7/2016: Blog Interview, "The Empowered and Innovative Technocrat within the City of Austin," 19 July, 2016, SmartAustin.Org, Austin, Texas.
39. 6/2016: Interview: What Smart City Means in Austin, 2 – June, 2016, City of Austin, Austin, Texas, Ted Lehr by Victor Agreda Jr of Superpixel.us
40. 6/2016: Smart Cities Innovation Summit: "Smart Business Models for Smarter Cities," 26 -28 June, 2016, Austin, Texas, Ted Lehr, Sherri Greenberg, Nicole Raimundo, James Pratt, Keith Durbin, Mateo Clarke
41. 6/2016: Smart Cities Innovation Summit: "Open Data and Smart Cities," 26 -28 June, 2016, Austin, Texas, Saloman Salinas, Brenna Berman, Jennifer Sanders, Ted Lehr, Archana Vemulapalli
42. 5/2016: Big Communications Event 2015: "IoT: Getting Smarter about Smart Cities," 24 – 25 May, 2016, Austin, Texas, Garry Connolly, Cam Witt, Ted Lehr
43. 11/2015: TexData Summit 2015: "Highlights and Future Plans for Big Data Analytics in the City of Austin," Austin, Texas, 9 November, 2015
44. 10/2015: NACTO: Designing Cities 2015: "Harnessing Big Data for Transportation Decision-Making," Austin, Texas 28 – 31, October, 2015, Jen Duthie, Rob Viola, Natalia Ruiz Juri, James Pratt, Tony Hull, Ted Lehr
45. 3-4/2015: Lectures, panel discussions at University of Texas, Ischool on data in public service and public service career opportunities around data. Guest lecture in journalism and sustainability classes at Texas State University on the role of data in the respective discplines.
46. 1/2015: Facilitated research collaboration discussion between City of Austin, Transportation Department, the Texas Department of Transportation and Texas State and University of Texas researchers to improve fire emergency services support in Austin through an NSF research grant.
47. 1/2015: Presented research and other open data opportunities to Open Austin, a civic technology organization committed to improving the community through technology.
48. 11/2014: **League of Cities Conference**, Austin, Texas. Hosted government officials from around the United States at a workshop at IBM-Austin to discuss the role of open data and open data policy in "smarter" cities.
49. Ted Lehr, Automating the Modeling of the Scalability of Computing Systems Performance Using Industry Standard (SPEC) Benchmarks, IEEE Central Texas Consultants Network, September 2012
50. Ted Lehr, Applying predictive analysis and algorithms to prevent capacity problems in moving to or operating under virtualized cloud environments, IEEE Computer Society, Austin Chapter, April 2012
51. Ted Lehr, Zary Segall, "Measuring Performance and Understanding the Numbers You Get," Invited Talk, Information Technology Center, Carnegie Mellon University, Pittsburgh, PA, March, 1991

52. Ted Lehr, "Visual Performance Monitoring," Invited Talk, Warsaw Institute of Technology, Warsaw, Poland, November, 1990

Funded, External Grants and Contracts

US-Ignite Application Development Award – City of Austin: Awarded $29k to Texas State for research and prototyping of virtual reality curriculum for training emergency medical personnel on using emergency ambulance buses. Lead advisor for the City of Austin. October, 2017
Smart Cities Council Readiness Challenge Grant; Awarded products and services to the City of Austin. Principle author for the City of Austin. February, 2017.
IEEE Foundation Grant #2014-039FF: "'Make' the World a Better Place," 8/2014 – 6/2015: $21,450.

Edited Books

1. Ted Lehr, Chapter 1, Smart Cities: Applications, Technologies, Standards, and Driving Factors, 1st ed. 2018 Edition, Editors: Stan McClellan, Jesus Jimenez, George Koutitas, Springer International Publishing, August, 2017,
2. Ted Lehr, Z. Segall, D. Vrsalovic, E. Caplan, A.L.Chung, C.E. Fineman, "Visualizing Performance Debugging," *IEEE Computer,* October, 1989
    - Reprinted in *Datapro Management of Application Software* by Datapro Research, McGraw-Hill Information Services Company, 1990
3. Theodore F. Lehr, Bob Wedig, "Toward a GaAs Realization of a Production-System Machine," *IEEE Computer*, April, 1987
    - Reprinted in *Reduced Instruction Set Computers* by W. Stallings, IEEE Computer Society Press, 1990
    - Reprinted in *Gallium Arsenide Computer Design* by V.M.Milutinovic, D.A. Fura, IEEE Computer Society Press, 1988

Institutional Service

- 11/2021: ABET Evaluator, Universidad Peruana de Ciencias Aplicadas**,** Lima, Peru, Software Engineering
- 10/2020: ABET Evaluator, Clarkson University, Potsdam, New York, Software Engineering
- 02/2020: ABET Evaluator, Alfaisal University, Riyadh, Saudi Arabia, Software Engineering Program
- 10/2018: ABET Evaluator, Universidad de San Buenaventura – Cali, Colombia, Software Engineering Program

- 10/2017: ABET Evaluator, Mississippi State University, Software Engineering Program
- 10/2016: ABET Evaluator, Universidad Icesi – Cali, Colombia, Software Engineering Program
- 4/2016: Recruited Microsoft to Computer Science Industry Advisory Board
- Current: EXE Advisor: Student Computer Science Club, Texas State University
- 10/2014 – Project director, ICPC- ACM Programming Contest at Texas State University
- 9/2014: ABET Evaluator, Pennsylvania State University – Erie: Software Engineering
- 2014 - 2016: Vice-Chair (elect) IEEE Education Society – Central Texas

Community Service

- **City government service**
  - 2021:
    - Brought together the USDOT Office of Science and Technology and City of Austin, Department of Transportation to collaborate on Austin being the first city in the US to partner with USDOT on next generation mobility infrastructure.
    - Led and sponsored the creation of a new, formal multi-department UAS (drone) task force to coordinate policy, technology, research, purchasing and use cases. This is one of the first such efforts in the United States.
    - Facilitated over 10 new research agreements with the University of Texas – Austin, using the 5 year inter-local research agreement (see bullet below).
  - 2020 Staff Lead – $7.5 million – 5 year Inter-Local Agreement; University of Texas – Austin & City of Austin.
  - 2014 – Present: City of Austin, IT Data Architect. Improve the availability, quality and use of city's open data.
  - 2006 – 2017: Commissioner, Chairman, City of Dripping Springs Historical Preservation Commission
  - 2006 – 2013: Commissioner, City of Dripping Springs Planning and Zoning Commission
- **Secondary school service**
  - 4/2014 – Recruited and facilitated panel discussion at Dripping Springs high school on careers for women in STEM fields.
  - 2013 – Member of the advisory committee for the Dripping Springs high school engineering academy
  - 2013, 2007, 2005: Member of Dripping Springs ISD Long Range Planning Committee
  - 2004, 2007: Chairman, "Friends of Dripping Springs Education" PAC. Led the promotion and passage of DSISD bond elections for a new elementary school and major upgrades to the middle and high schools

Refereed Journal Articles

1. Ted Lehr, Z. Segall, D. Vrsalovic, E. Caplan, A.L.Chung, C.E. Fineman, "Visualizing Performance Debugging," *IEEE Computer,* October, 1989
2. Theodore F. Lehr, Bob Wedig, "Toward a GaAs Realization of a Production-System Machine," *IEEE Computer*, April, 1987
3. Ted Lehr, "Development of a Low Cost Graphics Terminal," *Journal of the Computers in Education Division of ASEE*, January – March, 1985

Refereed Conference Proceedings

1. 9/2015: **Designs on eLearning Conference,** "Hackathons for Fun and Learning: Creating Interdisciplinary Collaboration between Communication Design and Computer Science,", London. 16 - 17 September 2015, Grayson Lawrence and Ted Lehr
2. Leslie Martinich, Ted Lehr, Deepika Sangam, "Make the World a Better Place: An Association-Industry-Academia Partnership," International Stem Education Conference, April, 2014.
3. T. Lehr, M. Breternitz, Jr., A. Gheith, A. Jindal, J. Peterson, J. Van Fleet, "Adapting AIX to a Shared Memory Cluster," *Proceedings of the Share Europe Anniversary Meeting, October*, 1993, p 415.
4. Anita Jindal, Ted Lehr, "Measuring and Visualizing Client/Server Behavior," *Proceedings of the Share Europe Anniversary Meeting*, October, 1993, p. 429
5. Ted Lehr, John Florkowski, "A Visual Comparison of AIX and OSF Using PIE," *1992 IBM Performance ITL*, Toronto, Ontario, April, 1992
6. Ted Lehr, David Black, Zary Segall, Dalibor Vrsalovic, "Visualizing System Behavior," *1991 International Conference on Parallel Processing*, August, 1991.
7. Ted Lehr, "Visual Performance Monitoring," Invited Talk, Polish Institute of Technology, Warsaw, Poland, November, 1990
8. Ted Lehr, David Black, Zary Segall, Dalibor Vrsalovic, "Visualizing Context-Switches of Parallel Programs Using PIE and the Mach Kernel Monitor," *1990 International Conference on Parallel Processing*, August, 1990
9. D. Vrsalovic, Z. Segall, D. Siewiorek, F. Gregoretti, E. Caplan, C. Fineman, S. Kravitz, T. Lehr, M. Russinovich, "Performance Efficient Parallel Programing in MPC," *22nd Hawaii International*
10. Theodore F. Lehr, Bob Wedig, "The Implementation of a Production System Machine," *19th Hawaii International Conference on System Sciences*, January, 1986

Reports

1. Ted Lehr, Bret Olszewski, Robert Berry, "Improving Performance of Visual trace Analysis Using Abstract Time-Lines*," IBM Technical Disclosure Bulletin*, March, 1995.
2. Ted Lehr, "Improving Performance of Visual Trace Analysis Using Abstract Time-Lines*," IBM Technical Disclosure Bulletin*, March, 1995.
3. Ted Lehr, "Improving Performance of Trace Analysis Using Visual Editing*," IBM Technical Disclosure Bulletin*, March, 1995.
4. Ted Lehr, "Fast and Automatic Identification of Performance Outliers in Trace Data*," IBM Technical Disclosure Bulletin*, February, 1995.
5. Ted Lehr, "Maintaining Magnification (ZOOM) Histories for Trace Visualization Tools*," IBM Technical Disclosure Bulletin*, February, 1995.
6. Ted Lehr, "Improvement of Insertion Algorithm for Visualization*," IBM Technical Disclosure Bulletin*, June, 1994.
7. Ted Lehr, "Run-Time Customizing of AIX Trace Visualization Tools*," IBM Technical Disclosure Bulletin*, May, 1994.
8. Ted Lehr, "A Data Structure and Insertion Algorithm for Representing Asynchronous Occurrences for Visualization by Trace Visualization Tools," *IBM Technical Disclosure Bulletin*, July, 1993.
9. Ted Lehr, David Black, Zary Segall, Dalibor Vrsalovic, "MKM: Mach Kernel Monitor: Description, Examples and Measurements," *Technical Report CMU-CS-89-131*, Department of

Electrical and Computer Engineering and the School of Computer Science, Carnegie Mellon University, April, 1989

Fellowships, Awards, Honors

- 1990 - 1997: Several technical achievement and innovation awards, IBM - Austin
- 1985: Burroughs Graduate Fellowship, Carnegie Mellon University
- 1983: General Electric Graduate Fellowship, Bucknell engineering faculty for graduate study at the university of choice
- 1983: Phi Beta Kappa
- 1981: Tau Beta Pi
    - President, Bucknell University Chapter: 1982 - 1983
- 1979: Kodak Scholarship for outstanding freshman engineer, Bucknell University