

# Ana Maria Tekina-eirú Maynard, Ph.D.

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## Executive Nonprofit Leadership and Visionary in STEAM Education Research

### Awards:

IBM Patents – 11 Patents in Usability, Machine Translation Support of Human Language Applications, Enhanced Automatic Language Detection, Next-Generation Globalization, 2002-2013  
IBM 2nd Invention Plateau, 3 patents rated FILE in the area of Next-Generation Globalization, 2008  
IBM 1st Invention Plateau, 4 patents rated FILE in the area of Next-Generation Usability, 2007  
IBM Research Division Award - “SimOS-PPC Development”, October 2000  
IBM Technical Author Recognition Award, Jan. 1995  
IBM Outstanding Technical Achievement - “RS/6000 Memory Subsystem Analysis”, Nov. 1994  
Trailblazer Award from University of Texas at Austin, College of Natural Science, October 2003  
Austin YWCA Woman of the Year for Arts, October 2005

### Education

<b>Ph.D. in Electrical and Computer Engineering</b> Carnegie Mellon University, Pittsburgh, Pennsylvania <b>AT&amp;T Cooperative Research Fellowship Program (PhD Fellowship)</b> Thesis: <i>Utilization of Idle Time in High Performance Processors (Multi-threading)</i>	<b>1992</b>
<b>Master of Science in Electrical and Computer Engineering</b> Carnegie Mellon University, Pittsburgh, Pennsylvania Thesis: <i>Fault-Free Performance Validation of Fault-Tolerant Multiprocessors</i>	<b>1986</b>
<b>Bachelor of Science in Electrical and Computer Engineering (cum laude)</b> New York University Polytechnic School of Engineering Eta Kappa Nu, Dean’s List	<b>1984</b>
<b>IBM MicroMBA &amp; Leadership Excellence University</b>	<b>2001 &amp; 2002</b>
<b>Holistic &amp; Integrated Health Certificate (Continuing Ed, 85 hours)</b>	<b>2012</b>

### Applied Research & Executive Nonprofit Consulting

**Flametree Corporation, President & Researcher (<http://flametree.com>)** **1997 – Present**  
PhD and experienced Senior Executive, Dr. Maynard combines 20 years of innovation in the high-tech industry (11 patents), with near 20 years of Executive leadership in the non-profit sector to deliver coaching, consulting services, and custom programs spanning her diverse skill-set, unique in the Southwest. She brings impact when creative, outside-the-box invention and her multi-disciplinary combination of skills will differentiate, in areas including but not limited to:

#### Nonprofit Executive Leadership & Development - Coach & Consultant

- Executive Nonprofit Leadership & Development - coaching and consulting services build nonprofits from inception to breakthrough achievements, including mission, strategy, development including grant writing, administration, and program development.
- Leadership Training with Cultural Competence - coaching, consulting, workshops for those leading global and multicultural teams, development of leaders with cultural competence, diversity, and inclusion for a globalized world; specialty, Hispanic/Latino, Afro-Latino, Caribbean-Native cultures.
- University Relations/Technical Recruiting – public-private research program development, long-term faculty relationship building to support professional development, joint-research, and recruiting.

#### STEM Education through Cultural Arts

- STEM to STEAM Education – applied research is developing a pilot program of innovative, hands-on project-based learning to inspire K-12/16 and adult learning for STEM education through cultural arts.

- "Engineering Education and Hispanic Learning: STEAM - Connecting Students to STEM through Cultural Arts", Dr. Ana María Tekina-eirú Maynard, Flametree Corporation, Dec. 2012. (White Paper)

## **Executive Non-Profit Cultural Arts Leadership**

### **Founding Executive & Artistic Director**

#### **Puerto Rican Folkloric Dance & Cultural Center (<http://prfdance.org>)**

**Sept 1997 – Present**

- Founding Executive and Artistic Director since 1997 inception of nonprofit (501C3), \$150K/year operating expenses (with in-kind), \$125K in assets, physical facility. Board President 1997-2012.
- Visionary behind the only cultural center in Texas and the four surrounding states affiliated with the Institute of Puerto Rican Culture. Since 2001, repeat grants awarded by National Endowment for the Arts, Texas Commission on the Arts, Humanities Texas, City of Austin Cultural Arts Division.
- Mission and strategy, development including grant writing, annual budget, execution and 501C3 reporting; recruiting, training of board and staff; administration and programming with volunteer staff.

## **Technical Leadership & Applied Research**

### **Researcher (Technical Lead, Globalization & Multicultural Support)**

#### **IBM Research Human Ability & Accessibility Center, Austin Texas**

**2006 –2012**

- Globalization Lead with mission to enhance human ability and accessibility with applied research in multi-cultural and multilingual support of human language applications, through automatic machine translation and multilingual TTS capability, including text-to-text and text-to-speech applications.
- Ground-breaking research contributed to prototype projects for IBM world-wide. Generated patents in machine translation support of collaborative tools and enhanced automatic language detection.

### **University Campus Relationship Manager (Technical Recruiting)**

**1998 - 2012**

#### **IBM Research University Relations / University of Puerto Rico-Mayaguez (UPRM)**

- Built invaluable long-term relationships with university professors that supported collaborative research and technical recruiting at all levels, with specialty in Hispanic PhD development and recruitment.
- Identified outstanding PhD-bound students to mentor and track for IBM Research Talent Program, GEM fellowships, internships, and employment.

### **Researcher (Technical Lead, Globalization & Human Factors)**

#### **IBM Austin Research Laboratory & HA&AC, Austin Texas**

**2005 –2007**

- Lead Multicultural support global team (US-Asia) that developed successful IBM-internal (TAP Project) prototype for IBM CIO Innovations. Conducted applied research in next-generation globalization and human factors for enterprise-grade multimodal applications for mobile devices. Generated patents.
- Globalization research contributed multilingual support for digital media enterprise library management system using dynamic media synthesis. Human factors research created new methodology to identify degradation of user experience for systems with complexity not visible from user interface.

### **Program Director (Corporate/University Research Collaborations)**

#### **IBM Austin Center for Advanced Studies (Austin CAS)**

**2000 –2006**

- Developed and directed a \$1M annual university research program that cultivated collaborative research with more than 30 research and development business units with 20 universities worldwide, in diverse areas of applied research and next-generation innovations for future systems, hardware, software, services, and business strategies.
- Austin CAS brought a focal point to the Site's university relationships. Mentoring of project formation ensured beneficial collaborations to university and industry. Research dollars annually obtained through cycles of proposal, stewardship, reporting of valued outcome for renewed funding.
- Received Trailblazer Award from University of Texas at Austin, College of Natural Science, 2003.

### **Senior Engineer (Technical Lead, Performance)**

**1997 - 2000**

#### **IBM Austin Research Laboratory, Austin, Texas**

- Technical Lead of performance for Full System Simulation Project, SimOS-PPC. Project contributed software environment to facilitate design of high performing systems for Server & PC Server markets.
- Technical contributions included initial performance pilot to improve usefulness and usability of simulation environment, as well as implementation of address translation unit, the memory hierarchy, and other features dedicated to symmetric multiprocessing that resulted in a patent.

**Senior Engineer (Technical Team Lead)**  
**IBM Corporation, Austin, Texas**

**1992 - 1997**

- Technical Team Lead of small hardware performance group which supported PPS, PSP and RS/6000 Divisions. For four years, conducted system-level hardware performance studies to drive product designs of future PowerPC and Power2 systems under AIX and microkernel-based operating systems.
- Contributions included analytic modeling, trace-driven simulation, performance analysis of future system designs for commercial markets, with emphasis on memory subsystem. I/O, uniprocessor and symmetric multiprocessor performance issues for OS/2 on Intel-Based systems for server market.

**Member of Technical Staff**

**1989 (Summer)**

**AT&T Bell Laboratories, Murray Hill NJ**

Investigated how processor idle time may be utilized to provide error detection in high performance pipelined processors. Unique concept invented during PhD research is today known as "Multithreading."

**Member of Technical Staff**

**1987 (Summer)**

**AT&T Bell Laboratories, Murray Hill NJ**

Investigated how numerical algorithms are programmed on experimental high performance machines. Implemented and measured performance of Linpack routines, written in native assembly of processor.

**Member of Technical Staff**

**1986 (Summer)**

**AT&T Bell Laboratories, Murray Hill NJ**

Designed and performed layout of a packet switching network for use in multiprocessor communications. Used ICON, a layout and simulation tool, for CMOS VLSI layout.

**Fault Tolerant Systems Research**

**1985 (Summer)**

**NASA Langley Research Center, AIRLAB**

Conducted fault-free performance validation of SIFT, an experimental multiprocessor system designed to provide extremely reliable computing service for critical functions in aircraft.

**Senior Technical Associate**

**1984 (Summer)**

**AT&T Bell Laboratories, Murray Hill NJ**

Used Prolog to describe and evaluate logic circuits. Implemented behavioral descriptions for both combinational and synchronous sequential circuit, and verified them for functional correctness.

**IEEE Workshop on Workload Characterization**

**1998 - 2004**

Founding Program Co-chairs: Prof. Lizy John, Univ. of Texas at Austin, and Dr. Ann Marie G. Maynard

## **Technology Patents**

- 2013 – Multilingual support for an improved messaging system.  
Ann Marie Grizzaffi Maynard, Qing Zhang Lai. US Patent 8,473,555 & US 20,100,293,230 (2010).
- 2013 – Enhancing language detection in short communications.  
Ann Marie Grizzaffi Maynard, Qing Zhang Lai, US Patent 8,423,352 & US 20,110,246,180 (2011).
- 2010 – Creating a session log for studying usability of computing devices used for social networking by filtering observations based on roles of usability experts.  
Ann Marie Maynard, William K. Bodin, D C Thorson, US Patent 7,822,702.
- 2010 – Multilingual asynchronous communications of speech messages recorded in digital media files.  
Ann Marie Maynard, William K. Bodin, David Jaramillo.  
World Patent / World Intellectual Property Organisation, WO 2,009,151,509.
- 2009 – Multilingual asynchronous communications of speech messages recorded in digital media files.  
Ann Marie Maynard, William K. Bodin, David Jaramillo.  
US Patent 20,090,271,178 & US 8,594,995 B2 (2013).
- 2009 – Multilingual administration of enterprise data with default target languages.  
Ann Marie Maynard, William K. Bodin, D Jaramillo. US Patent 20,090,271,176 & US 8249858 (2012).
- 2009 – Multilingual administration of enterprise data with user selected target language translation.  
Ann Marie Maynard, William K. Bodin, D Jaramillo. US Patent 20,090,271,175 & US 8249857 (2012).
- 2009 – Creating A Session Log For A Computing Device Being Studied For Usability.  
Ann Marie Maynard, William K. Bodin, D C Thorson, US Patent 20,090,006,108.
- 2004 – Improved computer memory address translation system. Ann Marie Maynard, B C Twichell.  
Patent / Taiwan, 2004-08-01 NI-220032 Taiwan.
- 2002 – Improved computer memory address translation system. Ann Marie Maynard, B C Twichell.  
Patent / Korea, 2002-07-08 346014 Korea, Repub. of.

- 2002– Computer memory address translation system. A M Maynard, B C Twichell, US Patent 6,442,664.
- 2011 – Advanced technology (voice recognition, transcription, translation, automatic language identification, text-to-speech) to support second language learners. Patent/Publish AUS8-2010-0496.

## Techology Books & Publications

"Engineering Education and Hispanic Learning: STEAM - Connecting Students to STEM through Cultural Arts", Dr. Ana María Tekina-eirú Maynard, Flametree Corporation, July 2012. (White Paper)

"STEAM -- Connecting Students to STEM through Cultural Arts", Dr. Ana Maria Tekina-eirú Maynard, Flametree Corp., SBIR Institute of Education Sciences, U.S. Dept. of Education, Feb 2012. (White Paper)

"Enterprise Library Management for Digital Media with Dynamic Media Synthesis," WK Bodin and Ann Marie Maynard, IEEE International Symposium on Wireless Pervasive Computing 2007, San Juan, Puerto Rico, February 5-7, 2007.

"Workload Characterization of Emerging Computer Applications", John, Lizy Kurian and Maynard, Ann Marie Grizzaffi, Editors, Kluwer Academic Publishers, Springer Netherlands, 2001.

"Workload Characterization for Computer System Design", John, Lizy Kurian and Maynard, Ann Marie Grizzaffi, Editors, Kluwer Academic Publishers, 2000.

"Workload Characterization: Methodology and Case Studies", John, Lizy Kurian and Maynard, Ann Marie Grizzaffi, Editors, IEEE Computer Society, 1999.

"Contrasting Branch Characteristics and Branch Predictor Performance of C++ and C Programs", Da-Chih Tang, Ann Marie Grizzaffi Maynard, and Lizy John, 17th IEEE Performance Computers and Communications Conference, Phoenix, AZ, February 1999.

Contrasting branch characteristics and branch predictor performance of C++ and C programs. D C D Tang, A M G Maynard, L K John, Performance, Computing and Communications Conference, 1999.

"Investigating Design Trade-offs for Technical and Multi-User Commercial Workloads", Ann Marie Grizzaffi Maynard, Colette M. Donnelly, and Bret Olszewski, Nikkei Electronics (Japan), Nikkei Business Publications, Inc., January 30, 1995.

"Contrasting Characteristics and Cache Performance of Technical and Multi-User Commercial Workloads", Ann Marie Grizzaffi Maynard, Colette M. Donnelly, and Bret Olszewski, ASPLOS-VI: Sixth International Conference on Architectural Support for Programming Languages and Operating Systems, San Jose, California, Oct. 4-7, 1994.

"Commercial Workload Performance in the IBM Power2 RISC System/6000 Processor", M. T. Franklin, W. P. Alexander, R. Jauhari, A. M. G. Maynard, B. R. Olszewski, IBM Journal of Research and Development, Volume 38, Number 5, September 1994.

"Estimating and Contrasting Performance of Power Personal 6XX-Based Uniprocessor Systems", Ann Marie Grizzaffi Maynard, Colette Donnelly, Tom Keller, Bob Urquhart, May 4, 1994. (IBM White Paper)

"Estimating Trailing Edge Effects for Power2 Based Systems", Ann Marie Grizzaffi Maynard and Bob Urquhart, IBM Technical Report #51.0813, 1993. (IBM Confidential)

"Estimating L2 Cache Performance on Power2 Based Systems", Ann Marie Grizzaffi Maynard and Bret Olszewski, IBM Technical Report #51.0731, 1993. (IBM Confidential)

POWER2 Commercial Workload Performance. M Franklin, W Alexander, R Jauhari, A M G Maynard, B Olszewski, IBM RISC System/6000 Technology, 1993.

"Utilization of Idle Time in High Performance Processors", Ann Marie Grizzaffi Maynard, PhD Thesis, Dept. of Elec. and Computer Eng., Carnegie Mellon University, Jan. 1992 (Today known as Multi-Threading)

"Fault-Free Performance Validation of Fault-Tolerant Multiprocessors" E. W. Czeck and A. M. Grizzaffi, NASA Contractor Report, January 1987.

"Fault-Free Performance Validation of Avionic Multiprocessors", E. W. Czeck, F. E. Feather, A. M. Grizzaffi, Z. Z. Segall, and D. P. Siewiorek, 7th Digital Avionics Systems Conference, Forth Worth, Oct 1986.