

PEDRITO MAYNARD-ZHANG

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OBJECTIVE

Leverage and grow my extensive experience of building high-quality software for domains where artificial intelligence techniques such as machine learning are harnessed to deliver superior experiences to customers.

EDUCATION

2001	PhD , Computer Science Dissertation: <i>Pedigreed Belief Change</i> Advisor: Prof. Yoav Shoham	Stanford University , CA
1999	MS , Computer Science	Stanford University , CA
1994	BSE , Electrical Engineering, <i>summa cum laude</i> Minor, Mathematics	Walla Walla College , WA

SPECIALTY AREAS OF INTEREST

Artificial intelligence, data science, machine learning, multi-agent systems & social computing, probabilistic and logical formalisms (e.g., Bayesian networks), cognitive robotics

WORK EXPERIENCE

2016 - present	Sr. Software Development Engineer , Marconi, AWS AI Labs, <i>Amazon.com</i> , WA Designed and led development of general-purpose platform for record-linkage and deduplication (previously as part of Last Mile Technology then Core Machine Learning, now AWS AI Labs). Developed primarily in Scala and Java, building on top of Spark, AWS EMR, and other AWS technologies. Platform is used in production by multiple internal customer teams. Also, designed and taught highly-rated first offerings of core <i>Introduction to Data Science</i> course for Amazon's Machine Learning University.
2014 - 2015	Software Development Engineer 2 , Silk Browser, AWS, <i>Amazon.com</i> , WA Designed, built, and supported various features for the Silk browser used on Amazon devices including trending pages, video, parental controls, and auto-completion. Developed primarily in Java and C++.
2008 - 2014	Software Development Engineer 2 , Bing Local Search, <i>Microsoft Corporation</i> , WA Designed, developed, and deployed high-quality software for local search projects spanning relevance/ranking, measurement, content record-linkage, and query understanding. Developed primarily in C#.NET, C++, SQL, and MapReduce-based environment. Sample projects: <ul style="list-style-type: none">▪ Designed and trained a classifier to identify and filter out false positive business entity results for local-intent queries.▪ Overhauled the process of creating synthetic training data from click data for the local search relevance rankers, resulting in a significant relevance gain.▪ Served as technical lead for the relevance measurement development team. Built and improved all measurement pipeline components including query set sampling, search engine scraping, human labeling, metrics calculation and reporting, and data analysis.▪ Designed and built tools for sampling and labeling cluster data for machine-learned data conflation.▪ Trained conditional random field (CRF) structure predictors for labeling queries in the Spanish markets of Spain and Argentina, resulting in improved relevance metrics.
2010 - 2013	Adjunct Faculty , Computer Science Department, <i>Seattle University</i> , WA Taught highly-rated graduate/undergraduate artificial intelligence courses once per year.

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- 2006 - 2008 **Software Development Engineer 2**, Customer Behavior, *Amazon.com*, WA
Designed, implemented, and deployed high-impact machine learning-based customer-targeting tools used by retail and advertising customers in the company. Targeting features included geography, gender, and historical purchase behavior. Developed primarily in Java, but did substantial work in shell script (e.g., ZSH, Perl), Javascript, JSP, etc.
- 2002 - 2005 **Assistant Professor**, Computer Science Department, *Miami University*, OH
Taught highly-rated graduate/undergraduate courses including machine learning, artificial intelligence, and data structures. Advised graduate students in their thesis research. Co-initiated a project to develop a RoboCup Soccer Simulator lab for multi-agent research. Published finished work in peer-reviewed journals and conferences. Co-PI'd a \$225,000 research grant from NASA. Developed software in Java, C++, C, and Matlab to support courses and research.
- 1995 - 2001 **Research Assistant**, Computer Science Department, *Stanford University*, CA
Conducted original research in projects including combining information from heterogeneous sources and logic-based robotics. Published and presented results in peer-reviewed conferences.
- 1997 - 1999 **Teaching Assistant**, Computer Science Department, *Stanford University*, CA
Assisted in teaching graduate/undergraduate artificial intelligence courses.
- 1996, 1997 **Summer Research Assistant**, Goddard Space Flight Center, Ames Research Center, *NASA*
Investigated the use of knowledge representation in the AFLOAT multi-agent system and the Remote Agent automated spacecraft-control system. (*Supervisors*: Dr. Walter Truszkowski, Dr. P. Pandurang Nayak)

SKILLS

- **Software Development Skills:**
Programming languages: Scala, Java, C++, C#.NET
Scripting languages: Python, shell scripting (e.g., ZSH), Javascript, MATLAB
Platforms: Spark, Linux/UNIX, Windows, AWS (EMR, S3, Glue, DynamoDB, etc.)
Databases and tools: SQL Server, MySQL, Git, etc.
Software development methodologies: Agile (particularly, Scrum and Kanban)
- **Leadership Experience:**
Technical lead – Bing Local Search Relevance Measurement team (2010-2012)
Mentor – Interns and full-time engineers, Amazon.com (2006-2008, 2014-present)
Advisor – Black Data Processing Association, Miami University (2002-2005)
- **Communication Skills:**
Writing includes technical publications in refereed journals and conferences.
Speaking includes technical conference presentations and classroom lectures.

PATENTS

- Pedrito Maynard-Zhang, Daniel Lloyd, Llewellyn J. Mason, Samuel A. Minter. 2011. Predicting geographic location associated with network address. U.S. Patent 7,937,336, issued May 3, 2011.

HONORS AND AWARDS

- Amazon.com Inventor Award (2007, 2018)
- National Physical Science Consortium Fellowship (1995-2001)
- GTE Fellowship (1995-1997)
- Engineer-in-Training Certification (1994)

ADDITIONAL INFORMATION

- **Languages**: Intermediate in Spanish, beginner in Mandarin Chinese
- **Foreign Countries of Residence**: Jamaica, Puerto Rico, P.R. of China
- **Hobbies**: Traditional Chinese kung fu, motorcycle riding, hiking, jigsaw puzzles

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REFEREED PUBLICATIONS

Journal Publications:

- Eyal Amir and Pedrito Maynard-Zhang. Logic-Based Subsumption Architecture. *Artificial Intelligence (AIJ)*, 153(1-2): 167-237, 2004.
- Mouin Hourani, Mufit Ozden, Frank Moore, and Pedrito Maynard-Zhang. Genetic Algorithm Application to Clustering Problems, *WSEAS Transactions on Systems*, 3(3): 1045-1053, May 2004.
- Pedrito Maynard-Zhang and Daniel Lehmann. Representing and Aggregating Conflicting Beliefs. *Journal of Artificial Intelligence Research (JAIR)*, 19:155-203, 2003.
- Pedrito Maynard-Reid II and Yoav Shoham. Belief Fusion: Aggregating Pedigreed Belief States. *Journal of Logic, Language, and Information*, 10(2): 183-209, 2001.

Conference Publications and Presentations: (♣ indicates I presented at the corresponding conference)

- Bradford J. Snow, Pedrito Maynard-Zhang, and Eric Bachmann. A WiFi Based Personal Place Awareness System using Bayesian Learning. *Proceedings of the 16th Midwest Artificial Intelligence and Cognitive Sciences Conference (MAICS'05)*, Dayton, Ohio, 116-123, 2005.
- Mouin Hourani, Mufit Ozden, Frank Moore, and Pedrito Maynard-Zhang. Genetic Algorithm Application to Clustering Problems, *Proceedings of the 4th WSEAS International Conference on Soft Computing, Optimization, Simulation, & Manufacturing Systems (SOSM'04)* in Miami, Florida, 2004. An earlier version appeared in *Proceedings of the 15th Midwest Artificial Intelligence and Cognitive Sciences Conference (MAICS'04)*, Chicago, Illinois, 138-147, 2004.
- Pedrito Maynard-Reid II and Urszula Chajewska. Aggregating Learned Probabilistic Beliefs. *Proceedings of the Seventeenth Conference on Uncertainty in Artificial Intelligence (UAI'01)*, Seattle, WA, 354-361, 2001. (♣)
- Pedrito Maynard-Reid II and Daniel Lehmann. Representing and Aggregating Conflicting Beliefs. *Proceedings of the Seventh International Conference on Principles of Knowledge Representation and Reasoning (KR'00)*, Breckenridge, CO, 153-164, 2000. (♣)
- David M. Pennock, Pedrito Maynard-Reid II, C. Lee Giles, and Eric Horvitz. A Normative Examination of Ensemble Learning Algorithms. *Proceedings of the Seventh International Conference on Machine Learning (ICML'00)*, Stanford, CA, 735-742, 2000. (♣)
- Eyal Amir and Pedrito Maynard-Reid II. Logic-Based Subsumption Architecture. *Proceedings of the Sixteenth International Joint Conference of Artificial Intelligence (IJCAI'99)*, Stockholm, Sweden, 147-152, 1999.
- Pedrito Maynard-Reid II and Yoav Shoham. From Belief Revision to Belief Fusion. *Proceedings of the Third Conference on Logic and the Foundations of Game and Decision Theory (LOFT3)*, Torino, Italy, 1998. (♣)
- Alvaro del Val, Pedrito Maynard-Reid II, and Yoav Shoham. Qualitative Reasoning about Perception and Belief. *Proceedings of the Fifteenth International Joint Conference on Artificial Intelligence (IJCAI'97)*, Nagoya, Japan, 508-513, 1997. (♣)

Symposia Publications:

- Eyal Amir and Pedrito Maynard-Reid II. LiSA: A Robot Driven by Logical Subsumption. *Proceedings of the Fifth Symposium on Logical Formalizations of Commonsense Reasoning (Common Sense 2001)*, New York, NY, 2001.
- Eyal Amir and Pedrito Maynard-Reid II. Logic-Based Subsumption Architecture. *Proceedings of the 1998 AAAI Fall Symposium of Cognitive Robotics*, Orlando, FL, 1-12, 1998.