

RICHARD H. WOLNIEWICZ
5560 Colt Drive, Longmont, CO 80503
richard@wolniewicz.com | (720) 378-1868

objective The teams I lead solve hard, important, and impactful problems with Artificial Intelligence software, especially where significant business, organizational, and people skills are required for a successful solution. I have specialized in Natural Language Processing in the last decade.

experience

2011-present

3M HEALTH INFORMATION SYSTEMS

SALT LAKE CITY, UT & DENVER, CO

Division Scientist, Natural Language Processing

Senior technologist leading 3M HIS's clinical natural language processing (NLP) systems for extracting insights from clinical records, improving outcomes, quality, cost, and revenue.

- Current focus is investigating neural-NLP techniques for clinical natural language understanding, and exposing 3M's clinical NLP platform via service APIs.
- Previous projects include introducing 3M's cloud data storage solutions to enable large-scale machine learning, migrating 3M HIS services to AWS, and coordinating ICD-10 NLP development. Dozens of services were migrated, processing millions of daily clinical documents and hundreds of terabytes of data storage.
- Led technical due diligence for acquisitions including CodeRyte (2012, Bethesda, MD) and Semfinder (2016, Kreuzlingen, Switzerland) in the clinical NLP space.

2008-2011

J.D. POWER & ASSOCIATES (MCGRAW-HILL)

BROOMFIELD, CO

Senior Director, Machine Learning Group

After being acquired by JDPA, the Umbria engineering team supported social media marketing research by delivering and supporting natural language processing analysis tools.

- Managed a multifunctional team of 30+ engineers, researchers, and technical staff responsible for research, development, and operations of NLP systems for social media market research.
- Our systems processed millions of social media posts daily, searched them for relevant content, and then applied algorithms to assess sentiment and speaker demographics.

2007-2008

UMBRIA CORPORATION

BOULDER, CO

Vice President, Engineering

Umbria was an early leader in the use of NLP for market research, and was acquired by JDPA in April 2008.

- Lead the Engineering department (30+ employees), introducing agile development (Scrum) and moving the distributed system towards a REST-based resource-oriented architecture.
- Prepared the technology organization for a successful acquisition.

2004-2007

AMAZON.COM

SEATTLE, WA

Senior Manager, Software Development, Content Platform

At Amazon.com I led the development and support of the machine-learning driven Single Content Platform used to schedule Amazon and third-party merchandising content across the website.

- Managed teams with 50+ employees responsible for development and operations of site content management software, including real-time content optimization using statistical algorithms against live click-stream and purchasing data, as well as platform systems including the services aggregation layer and rich media services.
- Page owner of Gateway, Browse, and Detail Page applications, accounting for 45% of site traffic.
- Led a team to unify multiple legacy systems into Amazon's Single Content Platform.

2001-2004

CSG SYSTEMS, INTERNATIONAL

BROOMFIELD, CO

Vice President, Engineering, CSG Analytics

CSG Systems provided customer relationship management (CRM) software to the telecommunications industry. The CSG Analytics team was formed from the Athene Software acquisition.

- Manager of CSG Analytics division, responsible for delivery of machine-learning software for customer relationship management, interactions with Product Management, Sales support, and customer engagements related to analytic technology.

- 1998-2001 **ATHENE SOFTWARE, INC.** **BOULDER, CO**
Vice President, Engineering
Athene was an early startup in the application of machine learning algorithms to customer behavior prediction, focused on the mobile telecommunications industry. Athene was acquired by CSG Systems in September 2001.
- Predicted customer churn and profitability (up-sell) opportunities using neural networks and other machine learning techniques, improving customer care for telecommunications companies.
 - Assembled a highly qualified development team from scratch, reaching 45 engineers in 2001. Oversight of all product development, research, technology and support staff.
 - Established standards for new organization, and successfully delivered multiple application releases on schedule.
- 1997-1998 **FLATIRONS COMPUTING, INC.** **BOULDER, CO**
Partner, Database Specialist
I was a founding partner of Flatirons Computing, a Boulder-based consulting firm.
- Specialized in data modeling for object oriented systems and mapping object oriented models to relational databases.
- 1996-1997 **HEURISTEC CORP.** **BOULDER, CO**
Software Manager
HeurisTec provided labor scheduling and optimization systems to the supermarket industry.
- Managed a 6-person team implementing a client/server version of the labor scheduling system.
- 1994-1996 **XVT SOFTWARE, INC.** **BOULDER, CO**
Database Technical Lead
XVT was a development tools provider specializing in operating-system-independent graphical user interface libraries and tools.
- Designed and developed database access libraries to integrate XVT's portable Graphical User Interface (GUI) libraries and visual development tools with databases.
- 1993-1994 **FIRST CLASS SYSTEMS, INC.** **COLORADO SPRINGS, CO**
Cofounder
First Class Systems provided grade tracking programs for teachers, including the first Windows-based commercial grade tracking application.
- 1990-1993 **UNIVERSITY OF COLORADO** **BOULDER, CO**
Graduate Research Assistant
Researched the adaptation of database technologies – including query optimization and parallel operator evaluation – to non-traditional database applications as part of my Ph.D. research.
- 1985-1989 **LABORATORY FOR ATMOSPHERIC AND SPACE PHYSICS (LASP)** **BOULDER, CO**
Professional Research Assistant (1988-1989)
Undergraduate Research Assistant (1985-1988)
LASP is a University of Colorado laboratory conducting space science research.
- Developed software & hardware for mission-critical real-time processing of satellite data.
 - Flight Controller for the Solar Mesosphere Explorer (SME) satellite.

education

1990-1994

UNIVERSITY OF COLORADO

BOULDER, CO

Ph.D. Computer Science, Database Systems

M.S. Computer Science, Database Systems (1991)

I researched numeric processing on large data sets within a database query execution context, including the query optimization of numerical operations such as Fourier Transforms.

- Dissertation: *Algebraic Optimization of Computations over Scientific Databases*
- Advisor: Goetz Graefe
- Research funded by NSA grant to CU Computer Science Department and LASP.

2003-2009

WARWICK BUSINESS SCHOOL

COVENTRY, UNITED KINGDOM

M.B.A. with distinction

My MBA studies emphasized financial modeling and operations research.

- Dissertation: *Fundamentals Analysis and Speculation: Assessing Uncertain Valuation Information during the Sub-Prime Mortgage Crisis*

1985-1988

UNIVERSITY OF COLORADO

BOULDER, CO

B.S. Engineering Physics

skills

- Strong software management and organizational skills.
- Artificial Intelligence technologies, including natural language processing, deep learning, and other machine learning technologies in real-time environments.
- Bridging AI capabilities with business objectives, communicating AI capabilities to business leaders, and communicating business objectives to software teams.
- Agile software development, particularly Scrum (Scrum certified in 2016). I have introduced agile into organizations without agile experience.
- Extensive distributed software architecture experience, including cloud systems.
- Deep knowledge of database systems, including both internal components and client interfaces.
- Programming experience in many languages, with recent experience in Kotlin, Java, Python, JavaScript, HTML/CSS, and SQL.
- Object oriented analysis and design.
- Real-time application development experience, including live click-stream data processing, data reception and transmission components for satellite control systems, and coding for spacecraft embedded systems.
- Portability and internationalization experience with a wide variety of platforms and operating systems, including Linux, Solaris, HP/UX, AIX, other Unix variants, and Windows.
- Strong customer interaction skills.
- Educated in management accounting and corporate finance.

publications

- Lian Yan, Richard Wolniewicz, Robert Dodier, "Predicting Customer Behavior in Telecommunications", *IEEE Intelligent Systems*, Volume 19, Number 2, March/April 2004.
- Lian Yan, Robert Dodier, Michael Mozer, Richard Wolniewicz, "Optimizing Classifier Performance via an Approximation to the Wilcoxon-Mann-Whitney Statistic," at *20th International Conference on Machine Learning*, Washington, D.C., August 2003.
- Michael C. Mozer, Robert Dodier, Michael D. Colagrosso, César Guerra-Salcedo, Richard Wolniewicz, "Prodding the ROC Curve: Constrained Optimization of Classifier Performance," at *Neural Information Processing Systems* conference, Vancouver, British Columbia, Canada, 2001.
- L. Yan, D. Miller, M. C. Mozer, R. Wolniewicz, "Improving Prediction of Customer Behavior in Nonstationary Environments," *Proceedings of the International Joint Conference on Neural Networks*, Washington, D.C., 2001.
- M. C. Mozer, R. H. Wolniewicz, E. Johnson, and H. Kaushansky, "Churn reduction in the wireless industry," S. A. Solla, T. K. Leen & K.-R. Müller (Eds.), *Advances in Neural Information Processing Systems 12*. Cambridge, MA, MIT Press, 2000.
- M.C. Mozer, R. Wolniewicz, D.B. Grimes, E. Johnson, and H. Kaushansky, "Predicting Subscriber Dissatisfaction and Improving Retention in the Wireless Industry," *IEEE Transactions on Neural Networks*, Volume 11, Number 3, May 2000.
- R. H. Wolniewicz, "Algebraic Optimization of Computations over Scientific Databases," *Ph.D. Thesis*, University of Colorado, 1994.
- R. H. Wolniewicz, G. Graefe, "Algebraic Optimization of Computations over Scientific Databases," *Proceedings of the 19th International Conference on Very Large Data Bases*, Dublin, Ireland, August, 1993.
- G. Graefe, R. H. Wolniewicz, "Algebraic Optimization and Parallel Execution of Computations over Scientific Databases," *Proc. Workshop on Metadata Management in Scientific Databases*, Salt Lake City, UT, November 3-5, 1992.
- G. Graefe, R. L. Cole, D. L. Davison, W. J. McKenna and R. H. Wolniewicz, "Extensible Query Optimization and Parallel Execution in Volcano," in *Query Processing for Advanced Database Applications*, J. C. Freytag, G. Vossen and D. Maier (editors), Morgan-Kaufman, San Mateo, CA, 1992.

patents

- US 8219447 B1, "Real-time Adaptive Probabilistic Selection of Messages," filed June 6, 2007, published July 10, 2012, Amazon Technologies, Inc.