

Rich Zuech

Technology Consultant with PhD and over 27 years of experience

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Recent PhD graduate in computer science with a focus in machine learning. Over 27 years of deep working experience with IT Technologies including: databases, programming languages, and commercial ERP systems. I'll finish my retirement in 3 years at my current job, and am currently open to consulting/contracting opportunities.

Authorized to work in the US for any employer

Work Experience

Database Administrator

City of Miami Beach - Miami Beach, FL

April 2002 to Present

- Database Administrator for City's Microsoft SQL Server databases in a production DBA role.
- Implemented a web application generating over \$1,000,000 annual revenue while automating work previously done by 6 employees. This financial data mart aggregates data from 11 different systems through Extract, Transform, and Load (ETL) processes: <https://lien.miamibeachfl.gov/LienResearch/default.aspx>
- Previous Role as Lead Administrator for the City's Tyler Munis ERP system. And have also supported other systems: Eden, EnerGov, Accela Automation, and Cityworks.
- Previous Role as Lead Administrator for Laserfiche which is the City's Enterprise Electronic Document Management System (EDMS) system.
- Develop complex Reports with SQL Server Reporting Services and Crystal Reports.
- Research Industry Best Practices and present recommendations as appropriate.

Adjunct Professor

Miami Dade College - Miami, FL

September 2011 to December 2011

- Taught courses in Computers and Electrical Engineering.

Technology Consultant

Quaxar.com, Inc. - Miami, FL

August 2000 to September 2001

- Team Leader on projects for the following clients: Telefonica B2B, Intercontinental Hotels; and assisted in project to monitor 20% of the power generated in Mexico for CFE.

Perl Developer (Consultant to IBM)

Maxim Group - Fort Lauderdale, FL

July 2000 to August 2000

- Lead Programmer for migrating IBM's European E-Commerce computer sales site in Latin America.

- Focused on functionality for Brazil and Argentina; significantly improved regional shipping and tax calculations systems.
- Established programming environment for IBM staff.

Senior Programmer Analyst

USite IFC, Inc. - Coral Gables, FL

September 1999 to May 2000

- Designed and implemented solutions for non-profit web portal (www.usite.net)
- Web Development with Perl and Javascript on a MySQL database backend.

Director of Technology, Co-founder

Subasta.com - Fort Lauderdale, FL

March 1999 to September 1999

- Developed and maintained an electronic commerce Spanish speaking auction site (Subasta.com)
- Managed and trained junior developer
- Enhanced system performance, reliability, and security
- Managed all technical projects
- Migrated the site from MySQL to Oracle and from Linux to Solaris

Associate Quality Engineer

Lambda Novatronics Incorporated - Pompano Beach, FL

December 1997 to January 1999

- Ensured conformance to quality specifications at both the system level and product level for military power supplies and avionics.
- Chaired the Material Review Board (a board comprised of Senior Engineers) and dispositioned nonconforming material.
- Audited systems to ensure ISO 9001 compliance.
- Served as a member of the Failure Review Board.
- Developed numerous database applications that focused on Quality Assurance.

Jr. Design Engineer, Reliability Section

Nacom Corporation - Griffin, GA

January 1997 to August 1997

- Primary duty was product reliability in an automotive electronics manufacturing environment.
- Additional duties were design review, failure analysis, parts localization, and manufacturing support
- Served as a member in Kaizen and Process Improvement Teams.
- Created an automated testing system with a mainframe, measuring devices, and lab equipment to conduct advanced reliability research on Conductive Anodic Filament.

Education

PhD in Computer Science

Florida Atlantic University - Boca Raton, FL

January 2012 to December 2021

Master's degree in Computer Engineering

Florida Atlantic University - Boca Raton, FL

August 1997 to December 1999

Bachelor of Science in Electrical Engineering

Georgia Institute of Technology-Main Campus - Atlanta, GA

January 1994 to December 1996

Skills

- Microsoft SQL Server
- Database Administration
- SQL
- AI
- Machine learning
- Data science
- Python
- ASP.NET
- ERP systems
- Cybersecurity
- PySpark
- Spark
- Big data
- SSRS
- Power BI
- Relational databases
- Perl
- Communication skills
- Natural language processing
- Data modeling

Links

<https://scholar.google.com/citations?user=qeDdKAsAAAAJ&hl=en>

https://www.researchgate.net/profile/Richard_Zuech

Awards

Research Grant - Received from Florida Atlantic University's Graduate Research and Inquiry Program (GRIP)

May 2016

Research topic was "Generating Cybersecurity Data Sets"

Science Communication Fellowship from the Patricia and Phillip Frost Museum of Science (Miami Science Museum)

February 2014

Fellowship involved communicating my research to the public through exhibits at the Museum.

In the Press - Researchers Render Cyberspace Like a 3D Video Game to Make Identifying Threats Easier

Featured in ResearchGate - July 24, 2017 - <https://www.researchgate.net/blog/threats-in-cyberspace-easier-to-see>

Certifications and Licenses

GIAC Certified Intrusion Analyst Certification (GCIA)

June 2017 to June 2021

GIAC Network Forensic Analyst (GNFA)

September 2016 to September 2020

Microsoft Certified Professional (MCP) for Installing, Configuring, and Administering Microsoft SQL Server 2000 Enterprise Edition

December 2000 to December 2001

Publications

A New Intrusion Detection Benchmarking System

[https://scholar.google.com/citations?](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:1sJd4Hv_s6UC)

[view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:1sJd4Hv_s6UC](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:1sJd4Hv_s6UC)

April 2015

A Survey on Feature Selection for Intrusion Detection

[https://scholar.google.com/citations?](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:uWQEDVKXjbEC)

[view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:uWQEDVKXjbEC](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:uWQEDVKXjbEC)

August 2015

Using feature selection and classification to build effective and efficient firewalls

[https://scholar.google.com/citations?](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:d1gkVwhDpl0C)

[view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:d1gkVwhDpl0C](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:d1gkVwhDpl0C)

August 2016

Network Traffic Prediction Models for Near-and Long-Term Predictions

[https://scholar.google.com/citations?](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:u-x6o8ySG0sC)

[view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:u-x6o8ySG0sC](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:u-x6o8ySG0sC)

November 2014

Machine learning for detecting brute force attacks at the network level

[https://scholar.google.com/citations?](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:9yKSN-GCB0IC)

[view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:9yKSN-GCB0IC](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:9yKSN-GCB0IC)

November 2014

Detecting web attacks using random undersampling and ensemble learners

[https://scholar.google.com/citations?](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:Tiz5es2fbqcC)

[view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:Tiz5es2fbqcC](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:Tiz5es2fbqcC)

December 2021

Detecting cybersecurity attacks across different network features and learners

[https://scholar.google.com/citations?](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:p2g8aNsByqUC)

[view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:p2g8aNsByqUC](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:p2g8aNsByqUC)

December 2021

A Session Based Approach for Aggregating Network Traffic Data--The SANTA Dataset

[https://scholar.google.com/citations?](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:u5HHmVD_uO8C)

[view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:u5HHmVD_uO8C](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:u5HHmVD_uO8C)

November 2014

Detecting cybersecurity attacks using different network features with lightgbm and xgboost learners

[https://scholar.google.com/citations?](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:OU6Ihb5iCvQC)

[view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:OU6Ihb5iCvQC](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:OU6Ihb5iCvQC)

October 2020

Investigating rarity in web attacks with ensemble learners

[https://scholar.google.com/citations?](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:XiSMed-E-HIC)

[view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:XiSMed-E-HIC](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:XiSMed-E-HIC)

December 2021

Detecting SQL injection web attacks using ensemble learners and data sampling

[https://scholar.google.com/citations?](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:738O_yMBCRsC)

[view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:738O_yMBCRsC](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:738O_yMBCRsC)

July 2021

Feature popularity between different web attacks with supervised feature selection rankers

[https://scholar.google.com/citations?](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:l7t_Zn2s7bgC)

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December 2021

Detecting web attacks in severely imbalanced network traffic data

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August 2021

Virtualized cyberspace-visualizing patterns & anomalies for cognitive cyber situational awareness

[https://scholar.google.com/citations?](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:u9iWguZQMMsC)

[view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:u9iWguZQMMsC](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:u9iWguZQMMsC)

2017

A new feature popularity framework for detecting cyberattacks using popular features

[https://scholar.google.com/citations?](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:tS2w5q8j5-wC)

[view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:tS2w5q8j5-wC](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:tS2w5q8j5-wC)

December 2022

Predicting Cyberattacks with Destination Port Through Various Input Feature Scenario

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June 2022

Machine Learning Algorithms for the Detection and Analysis of Web Attacks

[https://scholar.google.com/citations?](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:08ZZubdj9fEC)

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December 2021

Intrusion detection and big heterogeneous data: a survey

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[view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:2osOgNQ5qMEC](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=qeDdKAsAAAAJ&citation_for_view=qeDdKAsAAAAJ:2osOgNQ5qMEC)

December 2015