Jim Tyhurst, Ph.D.
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Machine Learning Engineer

Professional Summary

Jim is an experienced software engineer with a Ph.D. in Linguistics, working in statistical analysis, data engineering, machine learning, and natural language processing. His past enterprise architect experience is proving useful to productize new machine learning applications that have been prototyped by data scientists. His understanding of alternative architectures leads to well-structured maintainable code, based on design patterns when appropriate and supported by automated unit tests. Jim has delivered:

- Data pipelines.
- AI applications.
- ML models.
- Application code with unit tests.
- Instruction and mentoring in development processes.
- Requirements specifications, including stories, use cases, and UML models.
- Executable Architecture: Framework classes and application infrastructure.

Technical Expertise

Languages: Python, R, Java, JavaScript, SQL.
Platforms: Linux, macOS, Windows, Google Cloud Platform (GCP), Amazon AWS.
DBMS: PostgreSQL, SQL Server, Oracle, DB2, MongoDB.
Methodologies: Scrum, Kanban, Stories, Use Cases, UML, Responsibility-Driven Design, RUP, Structured Analysis.

Professional Experience

Independent Consultant at Tyhurst Technology Group, LLC   3/00 - current
Artificial Intelligence Projects

- Designed and prototyped a data pipeline to prepare healthcare documents for deep learning classifiers.
- Productized an R application as a web service, modifying models as requirements changed, and rebuilding models as the population changed over time.
- Worked with local and international psychometric researchers to deliver a scoring application for school assessments based on academic questions, attitude toward the learning environment, and demographic features.
- Designed and developed an expert system to appraise inventory for auction, resulting in increased revenue.
- Developed a natural language parser for domain names.
- Designed a decision tree development tool for medical applications.
- Developed a natural language generator, producing radiology reports from structured data.
- Developed a parser for engineering notes to extract features for an Expert System.
- Developed an expert system to generate manufacturing instructions for printed circuit boards.

Enterprise Software Projects

- Designed and developed new web applications from inception to maintenance: use cases, stories, JavaScript, Single-Page Applications (SPAs), RESTful microservices, JSPs, Java services, business logic, database design, stored procedures.
- Designed and developed gateways to third party web services: REST and SOAP.
- Evaluated key architectural decisions with respect to industry-accepted best practices to identify risks, benefits, and costs.
- Managed project requirements and test results for Fortune 50 OEM project team and software as a service (SaaS) development team, leading to production deployment.

- Specified development standards and procedures, including design documentation, source control, unit testing, and integration testing.
- Mentored junior developers.

Industries represented by clients:

logistics, transportation, insurance, medical, healthcare, domain auctions, educational testing, document management, e-commerce, data publishing, investment management.

Senior Data Engineer, Object Computing, Inc.   12/21 – 5/23

Analyzed data, built data pipelines, verified deployments, mentored ML engineers in software engineering topics on several projects:
- Xtrack.ai: Root cause analysis of railway logs from automated braking system.
- Tolam.io: Automated Regression Market Maker: Machine learning with carbon credit data to cluster credits and price them.
- Alyce.ai operations research: Bin packing as a service.

CTO, Marmalade.ai   8/20 – 12/21
- Guided research of web services to provide machine learning capabilities to the company app.
- Guided implementation of the company website.
- Supervised interns for machine learning and web development.

Teaching

Designing Enterprise Java Applications: Best Practices   2009, 2012, 2013, 2014
Co-taught a six-day course in South Korea with Wirfs-Brock Associates.

Developing web service clients in Java   2008
Two-day course taught at Oregon Graduate Institute.

Learning Java   2000 - 2007
Five-day introductory course taught at Oregon Graduate Institute.

University of Phoenix (online courses)   2000 - 2003
- "Fundamentals of Business System Development" (BSA 375) presents essential concepts of the software development lifecycle.
- "Business Systems Development II" (BSA 400) examines methodologies, tools, and standards used for enterprise-level business systems development.

Education

Ph.D. in Linguistics   University of California at Los Angeles
Dissertation title: "Logical Forms for English Sentences".
Committee chair: Edward L. Keenan
B.S. in Information and Computer Science   University of California at Irvine
B.A. in Mathematics   University of California at Irvine
Honors: Graduated Cum Laude in both bachelor's degrees.

Lifelong Learning: Online Courses

- Preparing for Google Cloud Certification: Cloud Architect. 2021-12-02. Google 7-Course Specialization. Coursera.
- Machine Learning with TensorFlow on Google Cloud. 2018-12-18. Google 5-Course Specialization. Coursera.
- Building R Packages. 2018-04-28. Johns Hopkins University. Coursera.
- Introduction à la statistique avec R. 2016-11-24. Université Paris-Sud. FUN MOOC.
- Web sémantique et Web de données. 2016-05-26. Inria. FUN MOOC.

- Data Science and R courses. 2014. Johns Hopkins University. Coursera.

More Information

- GitHub: http://github.com/jimtyhurst/
- LinkedIn: http://www.linkedin.com/in/jimtyhurst/
- Twitter: @jimtyhurst
- Mastodon: https://fosstodon.org/@jimtyhurst
- Certified ScrumMaster
- Sun Certified Programmer for Java 2 Platform