arjangtalattof

principal data scientist

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languages

trilingual english/french/persian
conversational spanish & italian

technologies

Machine Learning (Gaussian Processes, SVM, Neural Networks, Decision Trees, Random Forests)

Apache Kafka, Spark, Zookeeper

Cassandra, Graph Databases, PostgreSQL, Redis

Gremlin, Java, Python (pandas, scipy, numpy, scikit-learn), R, Scala, Tinkerpop

Unix/Linux (Centos, Debian, FreeBSD, Gentoo, RedHat), OS X, Shell scripting (bash, sed, awk)

activities

football
photography

INTRODUCTION

Data scientist and big data engineer in London. Python, Java & Scala developer. Spark and graph database enthusiast. Applied mathematician by training. Scholar of gastrointestinal motility variation. UK Tier 1 Exceptional Talent Visa.

technical summary

Computer vision machine learning pipeline. , *production*
Deploying AWS Batch, SQS, RDS (PostgreSQL), Cassandra and Spark to handle large computer vision end-to-end processing pipeline:
ETL and data abstraction layer to allow computer vision engineers access to and from the backend without having to know specific query languages (SQL, CQL, Gremlin) Evaluation of neural network performance regarding feature extraction for global image retrieval Using LSH techniques to perform global image retrieval based on features extracted from neural networks.

Massively scaled graph database analytics. , *production*
Leveraging Cassandra and Spark (Spark Streaming) for large-scale graph networks and analyses including:
Building tools to explore and analyze graph data in a distributed cloud-based cluster. Developing machine learning algorithms and automation of real-time entity resolution / disambiguation at scale. Dealing with 10^7 (eventually reaching 10^9) transactions daily utilizing Kafka and Spark Streaming to ingest massive amounts of data through an ETL pipeline. successfully deploying working beta software to client; revenue increase from $1.8M to $6.0M; internal investment by firm ($0.5M) to generalize new capability based on client deliverable.

Stochastic fluid transit model , *research*
Developed in Java to to study the effects of physiological variations on drug transit, dissolution, and absorption
Pulsatile, non-deterministic approach; Application of a non-homogeneous Poisson process; Based on sampling from and imaging of small bowel free water content

Analysis of noisy gastrointestinal pressure signals , *research*
Wavelet-based peak detection and kernel density estimation; Machine learning, Gaussian process regression & PCA for signal classification; Completed in Python with SciPy/NumPy/SciKit packages

Java interface for handling parameters and their values with syntax highlighting , *production*
Managing dynamic parameters that control processing pipeline; Parameters and database fields (JDBC Data_Port for MySQL); Pipeline source queue management and error handling

professional experience

aug 17 - pres
Scape Technologies , *principal data sciencist*
Building core date flow and analysis pipeline for location-based recognition, allowing devices to see and remember their surroundings & augment the world around them. Cloud side infrastructure allows ordinary mobile devices to enhance the world around them by overlaying digital items onto the physical world, both indoors and outdoors, using machine vision & artificial intelligence.

aug 16 - jul 17
Deloitte Consulting LLP , *senior data science consultant*
Mission Analytics in Business Model & Transformation/Strategy & Operations. Supporting senior government executives in the development of the organization's strategy and business process; assisting in development, collection, analysis, and reporting of data by leverage big data and machine learning technologies; serving as domain knowledgeable resource in advising the Deloitte team and client on tools and techniques to improve workflow.

jul 15 - aug 16
U.S. Food and Drug Administration , *research fellow*
Division of Quantitative Methods and Modeling in the Office of Research and Standards within the Office of Generic Drugs. Applying mathematical analysis to physiological/molecular based models for drug absorption, bioavailability, distribution and effectiveness. Using large data sets to improve the prediction and regulatory decision making for generic drugs.

mar 06 - aug 07
Department of Lunar & Planetary Sciences
University of Arizona , *java developer*
Developing open-source software for data analysis for the HiRISE instrument on the Mars Reconnaissance Orbiter. Co-funded by NASA and JPL.

education

2015 **Ph.D.** Pharmaceutical Sciences , *University of Michigan*
Dissertation: *Mechanistic Analysis and Quantification of Gastrointestinal Motility: Physiological Variability and Plasma Level Implications.*

2011 **M.Sc.** Pharmaceutical Sciences , *University of Michigan*

2009 **M.Sc.** Computational Biology , *New York University*

2006 **B.Sc.** Mathematics , *University of Arizona*

publications

selected articles in peer-reviewed journals

Formulation predictive dissolution (fPD) testing to advance oral drug product development: An introduction to the US FDA funded '21st Century BA/BE' projectBart Hens, Patrick D Sinko, Nicholas Job, Meagan Dean, Jozef Al-Gousous, Niloufar Salehi, Robert M. Ziff, Yasuhiro Tsume, Marival Bermejo, Paulo Paixão, James G. Brasseur, Alex Yu, Arjang Talattof, Gail Benninghoff, Peter Langguth, Hans Lennernäs, William L. Hasler, Luca Marciani, Joseph Dickens, Kerby Shedden, Duxin Sun, Gregory E. Amidon, Gordon L. Amidon
International Journal of Pharmaceutics *548.1 (Sept. 2018) pp. 120–127. 2018*

Measuring the Impact of Gastrointestinal Variables on the Systemic Outcome of Two Suspensions of Posaconazole by a PBPK ModelBart Hens, Arjang Talattof, Paulo Paixão, Marival Bermejo, Yasuhiro Tsume, Raimar Löbenberg, Gordon L. Amidon
The AAPS Journal *20.3 (May 2018) p. 57. 2018*

Gastric emptying and intestinal appearance of nonabsorbable drugs phenol red and paromomycin in human subjects: A multi-compartment stomach approachPaulo Paixão, Marival Bermejo, Bart Hens, Yasuhiro Tsume, Joseph Dickens, Kerby Shedden, Niloufar Salehi, Mark J. Koenigsknecht, Jason R. Baker, William L. Hasler, Robert Lionberger, Jianghong Fan, Jeffrey Wysocki, Bo Wen, Allen Lee, Ann Frances, Gregory E. Amidon, Alex Yu, Gail Benninghoff, Raimar Löbenberg, Arjang Talattof, Duxin Sun, Gordon L. Amidon
European Journal of Pharmaceutics and Biopharmaceutics *129 (Aug. 2018) pp. 162–174. 2018*

Pulse Packet Stochastic Model for Gastric Emptying in the Fasted State: A Physiological ApproachArjang Talattof, Gordon L. Amidon
Molecular Pharmaceutics *15.6 (June 2018) pp. 2107–2115. 2018*

Exploring gastrointestinal variables affecting drug and formulation behavior: Methodologies, challenges and opportunitiesBart Hens, Maura Corsetti, Robin Spiller, Luca Marciani, Tim Vanuytsel, Jan Tack, Arjang Talattof, Gordon L. Amidon, Mirko Koziolek, Werner Weitschies, Clive G. Wilson, Roelof J. Bennink, Joachim Brouwers, Patrick Augustijns
International Journal of Pharmaceutics *519.1-2 (Mar. 2017) pp. 79–97. 2017*

Low Buffer Capacity and Alternating Motility along the Human Gastrointestinal Tract: Implications for in Vivo Dissolution and Absorption of Ionizable DrugsBart Hens, Yasuhiro Tsume, Marival Bermejo, Paulo Paixao, Mark J. Koenigsknecht, Jason R. Baker, William L. Hasler, Robert Lionberger, Jianghong Fan, Joseph Dickens, Kerby Shedden, Bo Wen, Jeffrey Wysocki, Raimar Loebenberg, Allen Lee, Ann Frances, Greg Amidon, Alex Yu, Gail Benninghoff, Niloufar Salehi, Arjang Talattof, Duxin Sun, Gordon L. Amidon
Molecular Pharmaceutics *14.12 (Dec. 2017) pp. 4281–4294. 2017*

Using Physiologically Based Pharmacokinetic (PBPK) Modeling to Evaluate the Impact of Pharmaceutical Excipients on Oral Drug Absorption: Sensitivity AnalysesEdwin Chiu Yuen Chow, Arjang Talattof, Eleftheria Tsakalozou, Jianghong Fan, Liang Zhao, Xinyuan Zhang
The AAPS Journal *18.6 (Nov. 2016) pp. 1500–1511. 2016*

Gastrointestinal Motility Variation and Implications for Plasma Level Variation: Oral Drug ProductsArjang Talattof, Judy C. Price, Gordon L. Amidon
Molecular Pharmaceutics *13.2 (Feb. 2016) pp. 557–567. 2016*