

PROFESSIONAL EXPERIENCE

Development & Technical lead, IBM WH at IBM T. J. Watson Research Center

June 2019 - Present

IBM Digital Healthpass

- Lead and implemented decentralized identity (DID) for COVID healthpass verifiable credentials using blockchain technologies.
- Lead and implemented privacy-protecting, highly secure, owner-mediated, trusted, and verifiable data exchange service.

Research AI Engineer, IBM Research at IBM T. J. Watson Research Center

June 2015 – June 2019

AI Data Platform

- Built Data Platform for healthcare and life sciences (HCLS) advanced analytics feature engineering and feature storage to enable and promote the re-usability and scalability of assets across projects and data environments.

Nutritional Phenotyping

- Analyzed and extracted nutritional episode engagement phenotypes from Nutritional ANDHII data to predict patient diagnosis problem resolution in order to assist dietitian nutritionists and their interactions with patients.

Health Empowerment by Analytics, Learning, and Semantics

- Built applications to collect user behavior and contextual data for studying behavior change interventions that were implemented in a human-subject study conducted with RPI (Rensselaer Polytechnic Institute).
- Performed data mining and developed ML models to generate behavioral insights from personal health and wellness data.
- Designed software architecture and implemented AI solutions for a personalized recommendation system that combines ML and semantic reasoning to assist patients in managing their chronic health conditions.

Behavioral Phenotyping

- Used various ML models to extract behavioral phenotypes from Watson Care Manager data to predict patient engagement, goal achievement, and intervention effectiveness in order to assist care managers and their interactions with patients.

Medication Adherence

- Developed strategies for extracting, transforming, and loading 2TB of claims data into data warehouse target systems for use in ML pipelines.
- Engineered features for ML projects aimed at identifying behavior patterns that are predictive of medication adherence over time.

Precision Stress Management

- Design and implemented data pipeline to process health-sensor signal (ECG/EDA) data.
- Engineered features and developed models to extract behavioral patterns to explain discrepancies between perceived and observed stress levels.

Physical Activity Advisor

- Designed and implemented back-end services required by a Physical Activity Advisor mobile app prototype that leveraged time-series ML models to identify key times to motivate a user to increase their level of physical activity.
- Setup and maintained a distributed storage (HDFS) environment, data processing modules, and feature engineering scripts as part of a real-time analytics pipeline.

Senior Software Engineer, Sparity INC at IBM T. J. Watson Research Center

July 2011 – May 2015

- Led a team of developers to create the architecture and implement multiple applications to empower Research content creators to compose research stories, manage global content, and monitor overall system health for 9 IBM global THINKLabs.

- Actively involved in design and implementation of Gspeak applications to create and launch composable, interactive frameworks for IBM Research projects.
- Mentored and trained interns about the Gspeak interactive framework architecture and technology.
- Designed and implemented initial SmarterCities analytics solutions for municipal energy and water supply management programs.

Software Developer, Sparity INC at Olympus America Inc.

Dec 2010 - Jun 2011

- Analyzed, designed and developed medical endoscope GUI using J2EE and C#.
- Designed and implemented security to persist Patients Personal information in compliance with ARRA.

Java Developer, Conch Technologies at FedEx

Feb 2010- Dec 2010

- Developed a Realtime EMS monitoring web application to provide stats and server health status information.
- Performance analysis using JAVA Console and heap analysis tools (e.g. Eclipse Memory Analyzer).

Java Web Developer, StarMicro

Feb 2009- Dec 2009

- Designed and developed tools to communicate with Intuit QuickBooks and process the orders to provide feeds to backend systems.

Java Consultant, Dr.B.R. Ambedkar Open University

Sep 2006 – July 2007

- Designed and implemented and early-stage Exam Results Interface and data-driven backed system to release results.

Technical Skills

- **Languages:** Python, Java, R, Sql, AngularJS, Node JS | **Tools:** Pandas, Keras, Scikit-learn, Matplotlib, Git | **Others:** Spring Boot, JPA, hibernate, Cognos BI, SPSS, Sensu, Graphite, Spark, OpenStack, Chef, MongoDB, DB2, Oracle, Docker, Kubernetes.

Education

- Master of Science in Computer Science, Silicon Valley University, CA, USA
- Bachelor of Technology in Computer Science, JNTU, Hyderabad, INDIA

Dec 2008

May 2005

Select Publications

- C Maduri, PYS Hsueh, Z Li, CH Chen, C Papoutsakis , “Applying Contemporary Machine Learning Approaches to Nutrition Care Real-World Evidence: Findings From the National Quality Improvement Data Set”, Journal of the Academy of Nutrition and Dietetics, 2021
- S Das, **C Maduri**, CH Chen, PYS Hsueh, “Learning Patient Engagement in Care Management: Performance vs. Interpretability”, arXiv preprint, 2019.
- PYS Hsueh, S Das, **C Maduri**, K Kelly, “Learning to Personalize from Practice: A Real-World Evidence Approach of Care Plan Personalization based on Differential Patient Behavioral Responses in Care Management Records”, AMIA Annual Symposium Proceedings, 2018.
- Z. Li, S. Das, J. Codella, T. Hao, K. Lin, **C. Maduri**, CH. Chen, “An Adaptive, Data-Driven Personalized Advisor for Increasing Physical Activity”, IEEE Journal of Biomedical and Health Informatics, November 2018.
- HY. Chang, Z. Li, S. Das, T. Hao, **C. Maduri**, C. Partovian, J. Codella, CH Chen, “A Personalized Pacing System for Real- Time Physical Activity Advising”, CHASE, July 2017.

Awards

- Recipient, IBM Client and Partner Success Award, 2022
- Recipient, IBM Outstanding Technical Achievement Award, 2021
- Recipient, Watson Health General Manager Award, 2021

- Recipient, Invention Achievement Award – First Patent Application, IBM Research, 2019