

About

Healthcare IS Expert / Principal Data Engineer / Principal Software Engineer / Real World Data Normalization / Healthcare Interoperability / Semantic Normalization / Terminology Management / NLP / Technical Team Lead

Summary *Data the way you want it.*

- Cleanly ingest Real World Data to support AI: Data Science, Machine Learning, Natural Language Processing.
- Support measurably better health and business outcomes. Boost trust (and funding) by delivering reliably.
- Keep listening; demonstrate value; supply updates; use solid, smart practices; deliver code that works.

Tech Skills

- Python, SQL, FHIR, Kotlin, C-CDA, X12, HL7, OMOP, CSV, XSL, XML, XPath, Kafka, JSON, JavaScript, REST APIs

Education

- Harvard University – **MA, Information Management Systems** – Graduated 2013 while working full-time.
- Univ. of Alabama, Birmingham – **Healthcare Information Systems** – Dr. Eta Berner – 2023, AMIA 10x10.
- Smith College – **BA, Mathematics** – magna cum laude, Phi Beta Kappa. Music composition awards.

Work Experience

Project Rōnin – PRINCIPAL DATA ENGINEER | STAFF DATA ENGINEER – Oct 2021-Mar 2024

Applied proven interoperability skills to real world data from Epic and Cerner electronic healthcare records to support the AI-driven Rōnin oncology patient app and practitioner dashboard, which save costs and measurably improve treatment outcomes. Industry award winning ePRO app contributes to a vivid symptom timeline on the clinician dashboard, which focuses on cancer-relevant data and alerts teams to predictors of events like ED visits.

Rōnin: Staff Data Engineer (acting Principal) – Aug 2023-Mar 2024 – Python / SQL / Database Design / Team Lead

- Join Data Science and Clinical Informatics for cross-team collaboration to guarantee clean, healthy data.
- Build systems for authoring and storing semantic normalization data that controls mappings between customer medical data, standard terminology code systems, and the Rōnin FHIR profile (data model).
- Assure safe, accurate, non-destructive clinical meaning for data, traceable to its original source and values.
- Collaborate with Data Platform and Clinical Informatics to flatten FHIR data into Spark tables to drive models and algorithms, supporting Machine Learning and Natural Language Processing for Rōnin products.

Rōnin: Staff Integrations Engineer – Oct 2021-Aug 2023 – FHIR / HL7/ Healthcare IT / Kotlin / NextGen Mirth

- Join Interoperability and Integrations at this startup with a mission to transform cancer care through data.
- Load real world healthcare data. Normalize medical codes. Store in OCI or Azure for use by AI in product.
- Design, build system of data transformations (EHR to FHIR) for 2 vendors –Oracle Health (Cerner) and Epic.
- Design, build classes, channel template for NextGen Mirth integration. Form HL7 for clinical note writeback.

InterSystems Corporation – PRINCIPAL SOFTWARE DEVELOPER – 2009-2021

InterSystems: HealthShare Unified Patient Care Record (UCR) – 2019-2021

- Meet emerging payer market needs by adding FHIR R4, R3 intake ability to main data/ETL pipeline into UCR.
- Remove risk factors in C-CDA data intake, build performant, reusable tool to safely repair millions of records.
- Update data transformation mapping tool/code generator (see 2017): it now supports OHDSI OMOP CDM6.
- Enhance, modernize a healthcare data interoperability engine and data store with a worldwide install base.
- Guide epics and tasking. Develop new talent. Find, leverage existing, unused knowledge or skills on the team.
- Engage with teams across InterSystems to ensure architectural uniformity and data integrity across products.

InterSystems: Care Community - 2018-2019

- Primary architect and implementer of new code base. Author of data model, REST API, and back-end code.
- Designed, built new Care Plan management software for national health organizations (UK NHS).
- Handled care plan authoring, multiple local languages, auditing, document lifecycle management.
- Clinicians, patient, health proxy can share access care plans via the HealthShare patient data record.
- Coached agile scrum, demonstrating a measurable advance in deliverable product every 2 weeks.
- Helped shape roadmap: FHIR interoperability, care team management, event notification, data bindings.

InterSystems: FHIR (Fast Healthcare Interoperability Resource) Transformations – 2017-2018

- Led team to provide FHIR STU3 patient data transformations to/from InterSystems proprietary data format.
- Invented code generation framework to map patient data between any major schemas (HL7, more).
- Tool allows domain experts such as clinicians to express mappings between patient data fields simply.
- Based on mappings, tool generates executable transformation code and online documentation of mappings.
- Cut project staff/time load by 50% and produced 400% as much code (all FHIR resources) for STU3 vs. DSTU2.
- InterSystems products that use this FHIR STU3 code: IRIS for Health, Health Connect, HealthShare.

InterSystems: Coordinate My Care – UK National Health Service – 2015-2017

- Built UI and API for a document authoring, updating, and approval workflow for clinicians and patients.
- NHS required Internet Explorer 6-9, current browsers, and mobile phones. Under severe time constraints, I co-built a data-type-driven UI code generation framework that managed the workflow and delivered with it.
- System accurately delivers detailed patient care plans in seconds to London EMTs responding to urgent calls.

InterSystems: 2009-2015**IRIS, Caché (database and development platform)****Ensemble, HealthShare (application integration, healthcare interoperability)****Patient Index, Provider Directory (identity matching and management)**

- Designed UX, coded UI to manage data quality for identity products Patient Index, Provider Directory.
- Wrote UIs (JavaScript, HTML, SCSS, CSS, AngularJS, angular), contributing to Ensemble, HealthShare, IRIS.
- Wrote APIs (REST endpoints, swagger doc, wrote the back-end service code in ObjectScript and SQL).
- Wrote ObjectScript class code (O-O proprietary language, like Java, gives object view of platform data).
- Wrote SQL queries (using an embedded SQL projection for manipulating the same data and logic).
- Worked directly with underlying multidimensional data storage structures (globals) for ease and speed.
- Wrote and generated transformations (XSLT for XML, DocBook, Java) and scripts (Python, UNIX shell).
- Contributed components to the InterSystems core platform products IRIS, Health Connect, Ensemble.
- Found and examined the deeper InterSystems platform code in C, C++ (when needed).

PRINCIPAL TECHNICAL WRITER – 2002-2008 – InterSystems Corporation, Cambridge, MA**InterSystems: 2002-2008****Caché (database and development platform)****Ensemble (application integration, healthcare interoperability)****Zen (data-driven UI code generator)**

- Wrote XSLT transformation that still generates all documentation for all InterSystems products, as PDF.
- Source is DocBook XML: 1000+ pages, arbitrarily complex content, running error-free daily for 17 years.
- Designed page layout UX for all 3 supported book types and for their supported sets of DocBook tags.
- Originated all documentation, code examples, demos for the (then-new) products Ensemble and Zen.
- Originated project to document for customers, all performance tuning and option settings for Caché.