JUAN NARVÁEZ

MOTIVATED FULL STACK SOFTWARE ENGINEER WITH 15+ YEARS OF EXPERIENCE DEVELOPING ROBUST IMAGING & VISUALIZATION APPLICATIONS ACROSS A VARIETY OF PLATFORMS, LANGUAGES, AND DISCIPLINES

PERSONAL INFORMATION

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SAINT GEORGE, UTAH 84770

EDUCATION

WASHINGTON UNIVERISTY IN ST. LOUIS
MSEE ELECTRICAL ENGINEERING
BSEE ELECTRICAL ENGINEERING

OTHER

OPEN-SOURCE CONTRIBUTOR
CONFERENCE SPEAKER
GITHUB.COM/JDNARVAEZ
JDNARVAEZ.GITHUB.IO

SKILLS & TECHNOLOGIES

REACT	UPNP / DNSSD	GIT / SVN / CVS
TYPESCRIPT / JAVASCRIPT ES+	OAUTH / OPENID	AGILE / KANBAN / JIRA
CSS3 / HTML5	NPM / NODEJS	UI DESIGN
WEBGL	DICOM / HL7	IMAGE PROCESSING
MICROFRONTENDS	CONTAINERIZED DEPLOYMENTS	PARALLEL PROCESSING
MICROSERVICES	RUBY / RAILS	GPU ACCELERATION
WEBPACK / VITE / ROLLUP	AUTOMATED TESTING	JAVA
REST / WEB SERVICES	WEBDRIVER.IO	SWT/RCP
AUTHN / AUTHZ	WEBRTC	OSGi

INTELLECTUAL PROPERTY

ZERO FOOTPRINT APPLICATION VIRTUALIZATION — US10366135B2

Systems, methods, and computer-readable media for delivering an interactively updated application to a browser without requiring end users to install software locally are provided. Browser capabilities are detected. Bi-directional communication is established between a browser and server based on the capabilities. Representations of images are streamed to the browser. Human input device events associated with the representations are received. The representations are interactively updated.

UTILIZING MULTI-LAYER CACHING SYSTEMS FOR STORING & DELIVERING IMAGES — US20220181005A1

Methods, systems, and computer-storage media are provided for utilizing a multi-layer caching system to provide fast and accurate diagnostic image renderings to a healthcare provider. After receiving a request to view medical image data that comprises at least one image frame, the system accesses a least recently used (LRU) memory cache and a local database to determine whether the requested medical image data is stored locally. If the medical image data is not stored locally, the system accesses a remote image storage and retrieves the medical image data requested. The medical image data is then transformed from a compressed format to a decompressed format and transmitted to a user for review. Additionally, the decompressed medical image data is stored locally at either the LRU memory cache or the local database until no longer needed.

LINKING GRAPH — US20230084352A1

Methods, systems, and computer-readable media are disclosed for organizing and linking image series for a patient in a linking graph. The organizing and linking of image series for a patient can be performed automatically and based on manual selection of a user. As a user scrolls through image instances of for a primary image series, image instances from linked image series that share position coordinates (or image instances closest thereto) are automatically and simultaneously presented to the user viewing the primary image series.

WORK EXPERIENCE

SENIOR STAFF SOFTWARE ENGINEER | VANNEVAR LABS — SEP 2023 - PRESENT

- Realtime FFT streaming from remote devices from multiple SDRs vis WebRTC
- Spectrum analysis / visualization components and tooling
- Login Experience
- Shared Application Layout / Shell / Launcher Experience
- Federated module framework for frontend application platform
- Authentication & Authorization System based on Keycloak & OpenFGA
- Shared frontend & backend authn / authz libraries
- Shared set of UI libraries, server libraries, and workflows for quickly building / deploying application stacks
- Libraries / utilities for observability & monitoring on both the frontend / backend
- Led effort to modularize / reuse / deploy libraries to a central repository
- Storage management services on remote devices
- Took multiple applications from basic concept to full-fledged CI / CD stack (0-1)
- Developed variety of interactive visualizations / filters / views for data analysis
- Led investigation of performance issues across other products and developed remediations and standard practices to mitigate future issues
- Shared map visualization components, layers, and services
- Unified UI across an application suite of 10+ applications and provided a way to create more in a standardized look and feel
- Remote provisioning system for installation / upgrades of software on remote devices

JUAN NARVÁEZ

DIRECTOR OF ENGINEERING / LEAD ENGINEER | ANEDOT — FEB 2022 – SEP 2023

Lead a team of backend, frontend, and devops engineers to implement the next generation of interactive page building for the Anedot donation platform

- Non-profit storefront & checkout pages
- Create pixel – perfect replications of designs
- Write UI, hooks, perform performance optimization and investigation
- Review code, provide insight and solicit improvements
- Foster a high tempo and egoless development environment for all team members
- Streamline QA & product processes
- Facilitate quick turnaround of client issues & feature requests
- Guide technology choices as platform evolves
- Work with design and customer team to understand workflows and needs of customers and internal users

LEAD ENGINEER | HUDL — SEPT 2021 – FEB 2022

Streamline and uplift React frontend with a .NET backend

- Streamline Hudl's beta offering with a focus on user experience and performance
- Modernize use of React
- Decrease page load times and memory utilization
- Provide a reusable and customizable layout system

ASSOCIATE PRINCIPAL ENGINEER | CERNER (ORACLE HEALTH) — MAR 2020 – SEPT 2021

Designed & developed a web based medical imaging viewer for the purposes of referential viewing & diagnosis

- React based client application & component library with Rails backend
- Browser detection to serve different variants of optimized client components
- Reusable server components for querying & accessing content
- Fully IHE compliant for display of images & presentation states
- Responsive design with desktop and mobile optimizations
- Leveraged newer web APIs to facilitate the decoding of images in uncommon formats as well as the transient caching of the resulting image data
- Full suite of automated tests that emulate user workflow within both desktop and mobile environments
- Developed scripts to automate the ingest, storage, and synchronization of test datasets
- 3D MPR Reconstruction
- ECG Rendering
- Reporting Visualization

Designed & developed an administration dashboard for a cloud-based imaging content archive

- Flexible UI for using proprietary query services as well as standard DICOM CFind operations
- Shows hierarchy of details at study, series, and instance level as well as a DICOM header summary
- UI for transferring and removing studies from DICOM AETs
- UI for creating a configurable anonymized version of a study

Designed & developed a dashboard for automated testing results

- Led the effort to standardize & streamline reporting, testing, & traceability across development teams
- Pluggable components for processing and displaying results
- Webdriver.IO & Jest reporters to track both automated UI and unit tests
- PDF Export of test executions for regulatory submissions
- Generation of dynamic dashboard for reusability

JUAN NARVÁEZ

LEAD SOFTWARE ENGINEER | CERNER (ORACLE HEALTH) NOV 2017 – MAR 2020

Joined the Clinical Centers organization at Oracle Health (Cerner) to develop a new imaging viewer solely based on web technology.

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- Fully IHE compliant for display of images & presentation states
- Responsive design with desktop and mobile optimizations
- Leveraged newer web APIs to facilitate the decoding of images in uncommon formats as well as the transient caching of the resulting image data
- Developed XZ (LZMA) and Snappy JS decoder libraries
- Full suite of automated tests that emulate user workflow within both desktop and mobile environments
- Developed scripts to automate the ingest, storage, and synchronization of test datasets

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MAPS POI ENGINEER | APPLE, INC. JAN 2014 – NOV 2017

- Responsible for the development of new features and ongoing maintenance for POI and incident data
- Designed & developed real-time features for managing transit incidents
- Designed & developed Scala web services backed by both relational and flat databases to merge data into coherent responses for processing
- Converted SBT projects to Maven projects with lifecycles to allow for a single click builds
- Facilitated data ingest for Apple Pay
- Created an interactive visualization UI for managing the transformation of vendor data models to internal data models
- Implemented advanced query features based on enhanced Solr schema
- Various proof of concept projects for new iOS service features
- Facilitated rapid release cadence and feature rollout

SOFTWARE ARCHITECT/ENGINEER | CERNER (ORACLE HEALTH) JUNE 2007 – DEC 2014

Developed an FDA 510k approved Diagnostic imaging application and framework written in Java backed by a C++ rendering engine. Responsibilities included gathering requirements from solution designers and clinicians, designing, implementing and documenting the core framework APIs, designing and implementing custom UI components, and developing processing algorithms and application delivery mechanisms. Project management, issues, and enhancements were tracked through JIRA and the source code was managed through SVN.

Modular Medical Imaging Application Platform

- Developed an application platform written in Java that is intended to run within an OSGi environment. The application renders high resolution diagnostic quality medical images and allows users to perform filtering, transformations, and annotations on a set of images and persist this as part of a patient's electronic health record. The application utilizes web services to store/retrieve data and heavily leverages the OSGi service concept for modular APIs. The application has a self-provisioning system and real-time monitoring framework that is secured via OAuth to allow for the identification of clusters of application systems and allows administrators to push out software updates and configurations without the need to access every device on which the application is running. The application also provides an XMLRPC over HTTP API as an alternative to RMI that allows other processes to communicate with it and control it without the need to invoke any Java code. Application metrics, messages, and errors are tracked within a Hadoop instance and allows for quick monitoring and reporting of a client's current and historical status across a variety of usage and end user experience statistics.

Zero Footprint Application Virtualization Framework

- Developed an application framework that allows users to access a Windows based application through any web browser (with no additional plugins or software installation required) as an alternative to VMWare and Citrix deployment environments. The framework leverages on-the-fly compression with a variety of codecs and also has the ability to adapt to the device's environment, including recognizing touch gestures and adjusting quality of rendering based on the detected bandwidth and average client frame rate. The framework permits the dynamic discovery and removal of nodes to the rendering and application clusters as well as usage tracking for load balancing across a number of servers. Users can also share an application session so that the same patient record can be diagnosed in a collaborative fashion.

Other Projects

- Eclipse Workbench Extensions and Persistence APIs for Multi-Monitor Environments
- Remote Desktop Services Access Library
- Parallel JPEG Encoder
- Custom SWT UI Components
- Real-Time Application Monitoring System
- Web Application for Workflow and Application Assessment
- High Availability Distributed Disk Cache
- HTTP Communication Libraries
- Scalable DICOM WADO Implementation
- WMI Library to access the Windows Management system through Java
- OAuth Utilities
- OAuth Secured Application Provisioning Framework
- OAuth Secured Application Configuration Management Framework
- Maven projects for creating Windows Service end-states
- HTTP Streaming to facilitate Desktop Mirroring over AirPlay
- Corrected / Optimized search algorithms
- Converted direct database query mechanisms to web-streaming based mechanisms
- Eliminated redundant code and optimized image loading mechanisms
- Implemented UI components for image information
- Implemented DICOM specifications for image scaling

LAB TECH/RESEARCHER | WASHINGTON UNIVERSITY SCHOOL OF MEDICINE 2002

Human & animal based genetic research
Gene sequencing, isolation, and analysis with a focus on determining how chickens can regain hearing after a hearing loss incident and how this could be applied to humans

LAB TECH/RESEARCHER | ST. LOUIS UNIVERSITY SCHOOL OF MEDICINE 2001

Bacteriophage isolation, duplication, and analysis.

INDIVIDUAL WORK

SQORZ / USA BMX Rider Link App

- Read teal-time SQORZ timing data from transponder web API to correlate rider information from transponders to USA BMX registrations
- Used by USABMX at their national / world series events to generate VMix data for display on video streams

COVID-19 Interactive Map

- View time series, daily, and total statistical data of COVID-19
- Interactive map with multiple layers to visualize hospital utilization, risks, and other statistics

Sprint Training Web / iOS App

- Connect to ProStart electronic start gates via Bluetooth LE
- Connect to Cycle Speed & Cadence Sensors via Bluetooth LE
- Detect acceleration from stop to start a sprint timer
- Track max speed, cadence, rest time, g-force and time it takes to reach a configurable distance and speed
- Track times tracked by start gate cadence and laser timers
- Display time series data of max speed, elevation changes, max g-force, time to reach goals, and sprint trends
- Realtime map with rider's location
- Leaderboard for fastest sprints

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Race Day BMX Web/ iOS/Android App

- Scan USA BMX membership cards to create a rider profile that syncs with USA BMX
- Discover USA BMX tracks and events via interactive map
- Logbook for personal tracking of motos including lane position, finish position, award type, rider count, photos & notes
- Tabulate rider points based on logbook entries and compare against posted USABMX scores
- Retrieve and display rider standings and details from the USA BMX sanction

Cornerstone open-source medical imaging libraries

- Completed entire IHE profile for image display consistency
- Contributed back features that enhanced patient safety
- ECG peak detection and QRS detection
- ECG rendering & measurement tools