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Sev Leonard

Skills & Technologies

- Full stack web development with JavaScript, React, Redux, Redux Saga, jQuery, Bootstrap, Flask, Spring, Hibernate, Docker.

- Database design and data wrangling including ORM, ETL development, web scraping, and data processing using SQL, Python, Postgres, and Jupyter/iPython notebooks.

- Server side development with Flask, Python, Docker. Website deployment and management on DigitalOcean. Experience with AWS, Azure, and Heroku.

- Agile/SCRUM, UX testing, OOD, pair programing, version control with git, Perforce, automated UI testing with Selenium, unit testing with NUnit, pytest, CI with TeamCity.

- Technical training & writing. Topics include OOD, Python, micropython, front end development, and data wrangling.

- Experience working with human subject data, HIPPA, PHI, and IRB protocols.

Oregon Health & Science University, Computational Biology - Portland, OR

Research Software Engineer - February 2017 - Present, hours per week: 40

As a developer on a small, highly collaborative team I architect & develop a data management system for cancer research and clinical trials. This system provides medical staff with a view of patient data over time across a variety of data sources. Features include data entry and management tools, cohort search, and dashboards for specimen and patient data. Key challenges are working with disparate research groups to get buy-in for feature development, gathering and transforming several different types of data, ensuring data security while promoting data sharing, and delivering robust, high quality software in a dynamic research environment.

Technical Skills Used

JavaScript, React, Redux, Redux Saga, Python, Jupyter notebooks, Selenium, pytest, REST API, Spring, Hibernate, ORM, relational database development, UX testing, AGILE/SCRUM, ETL, github, JIRA, Postgres, SQL, pair programming, end user and developer documentation.

- Ensured effective product development through working with lead researchers to understand needs and align goals among different research groups. Through documenting business rules, usability testing, and soliciting regular feedback team delivered relevant, useful tools which were widely adopted.

- Architected & developed relational database schema, business logic, and Spring/Hibernate backend for specimen dashboard. Dashboard showed available test results related to patient

tissue specimens, arranged in hierarchical fashion so users could expand parent specimens to see derivatives. Worked with researchers to understand data relationships for schema design and to create business rules for populating the dashboard. Minimized dashboard loading time through developing a hierarchical REST API, allowing front end to fetch only the most pertinent data as users navigated the dashboard. Ensured data was updated realtime through views and triggers on source data tables.

- Delivered a 5-10x speedup of existing Hibernate backend. Prior design resulted in long response times and database connection errors, resolved through use of connection pooling and optimizing object mapping.

- Quickly brought clinical data online through development of automated ETL processes. SQL based system ingested & transformed data from EHR, oncology, and research data sources including Epic (Clarity, Beaker, Beacon), Oncolog, GeneTrails, and Powerpath.

- Reduced front end development time and maintenance by developing a custom library of configurable React/Redux HOCs for form and visualization elements. Designed sagas, reducers, and data translation logic allowing dynamic generation of UIs based on backend configuration.

- Led adoption of best practices including pair programming, virtual environments, functional testing, automated UI testing, and testing ETLs and SQL-based business logic. Developed functional testing and automated UI testing suites.

- Facilitated communication through writing documentation for users on DMS system use, data entry, and analyzing ETL results. Wrote documentation for software developers on git usage, developing new ETLs, and adding new endpoints to the Hibernate backend.

- Prepared work proposals and consulted on technology decision making for cancer center directors, scoped feature requests and decomposed into epics and user stories, advised managerial staff on how to represent development time and set priorities, and provided direction on resolving difficult personnel issues.

- Mentored junior developers on git usage, software development best practices, and career growth.

The Data Scout - Portland Oregon

Independent Consultant - June 2014 - February 2017, hours per week: 40

As a consultant I provided data science and software development services, developed technical writing and training, and launched a camping website for the Pacific Northwest.

Technical Skills Used

JavaScript, jQuery, React, Bootstrap, HTML, CSS, Python, Flask, Jupyter notebooks, REST API, ORM, relational database development, github, pytest, Postgres, mySQL, SQLite, SQL, Docker, Heroku, AWS, Azure, Google Analytics, Google Tag Manager

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- Technical writing, tutorial development, and tutorial testing for DevelopIntelligence and AppendTo.com listed under "Publications" below. Interactive tutorials on Python data wrangling and React hosted on codepen.io and Heroku. Tested node.js tutorial content for building content using Azure.

- Created a REST API to allow developers to access the 4000 campgrounds / 100 features in the campnear.me database (described below). Lead a workshop at Toorcamp 2016 on using the API to develop web apps for Pacific NW camping.

- Developed a tutorial on object oriented data pipelines for PyCon 2016. Instructed attendees on the basics of capturing and organizing web data via APIs, web scraping, and form traversal and how to use object oriented design techniques to create testable, extendable web scraping and data manipulation objects. To avoid issues with conference wifi the tutorial was delivered entirely offline. Docker containers were used to run a LAMP stack serving the example websites and mocked APIs with a second container providing the Jupyter notebooks and corresponding Python stack for running the tutorials. Libraries covered included requests, BeautifulSoup, Selenium, and Pandas.

- Developed www.campnear.me, a comprehensive platform for planning camping trips in the Pacific NW. Created a public lands camping database derived from Federal, State, and local agencies including the RIDB API, USFS web data, and OR Parks API. Automated reservation queries for recreation.gov and ReserveAmerica.com to provide upcoming availability information. Derived unique features for campground search based on analysis of campground data & use of spatial resources to provide drive time information. GoogleMaps-based front end designed to work on mobile, tablet, and desktop. campnear.me was presented at Demolicious during Portland Startup Week 2016.

- Setup Google Analytics and Google Tag Manager to analyze form submissions for campnear.me to track popular search terms.

- Explored potential avenues for improving user conversion rate using social media data and user behavior for an email marketing platform. Modeled conversion event & developed features for a logistic regression model. Recommend several areas of improvement to increase conversions, both for client platform and client's customers. Advised client on future research directions.

- Improved click through rate by 40% through developing a logistic regression model for targeted advertising. Performed data exploration, feature development, and developed regression model for recommending ad content based on user data. Features derived from text, demographic data, and ad data using cluster analysis, NLP, and sparse matrix techniques.

Intel Corporation - Portland OR

Software Engineer - May 2011 – May 2015 , hours per week: 40

The user-centered software design team worked with interaction designers and platform engineers to develop compelling software experiences for concept hardware projects and Intel platform features. Key challenges were working with prototype hardware, coming up with compelling demos to assist product marketing, and integrating Intel platform features into Windows Store Apps (WSAs).

Technical Skills Used

C#, JavaScript, NUnit, Perforce, TeamCity, ORM, Perforce, AGILE/SCRUM, Java, TDD, prototyping, UX testing, Azure, code reviews

- Intel Show Screen Manager: C# WSA providing content for an external EInk display. Implemented 3rd party EInk display access via protocol handlers, Azure cloud services, Twitter integration, SQLite storage solution, and UI design. Worked with driver & firmware developers to root cause low level issues. Built ASP.NET service for aggregating RSS feeds, handling client side requests to add or remove feeds and keep track of which items were read/unread.

- Concept EInk Project: (demoed at IDF Fall 2013, CES 2014): Worked on driver wrapper, UI, and concept applications (EReader, EInk screen manager) in C#/WPF. Integrated Linux driver into AndroidIA distribution with no prior Linux kernel experience and developed Android native stack (HAL – JNI). Worked with interaction designers, external vendors on UI implementation.

- Intel Experience Center (IEC): WSA w/ UMDF in C#, JavaScript, HTML. Shipping to millions of customers on Intel Ultrabooks, IEC wraps Intel platform-specific tools for access in Win8/WinBlue. Major features contributed include developing infrastructure for hosted app notifications (toast, tile), Flurry analytics integration, dynamic content framework design and implementation, UI redesign, and working with external UI design firms.

- Mentored junior engineers on career growth in corporate environments, facilitated introductions both inside Intel and in the Portland technical community.

Circuit Design Engineer - May 2005 – May 2011, hours per week: 40

The microprocessor design team at Intel is responsible for developing next generation Intel microprocessors.

Technical Skills Used

Perl, analog circuit design, technical documentation, custom digital circuit design, static timing analysis, noise analysis, circuit aging and IR analysis, statistical modeling.

- Analog Engineer – Core i7 (Haswell, Broadwell generations): Lead analog quality reviewer overseeing electrical rule checks for all analog circuits. Collaborated on a novel technique for PCIe Rx clocking and delivered PLL and PI circuits. Provided design

process improvement recommendations based on mining execution data from previous projects.

- Component Design Engineer – Core i7 (Nehalem, Westmere generations): Designed custom circuits for supply domain crossings that are now standard on all Intel Microprocessors. Trained engineers, designed automated flows and reviewed designs. Performed static timing analysis, data path and register file circuit design, timing & power optimization, and power delivery planning.

The Ohio State University - Columbus, OH

Research Assistant - March 2002 - June 2004, hours per week: 35

The Analog VLSI Lab collaborated with industry partners including Intel and Texas Instruments to develop next generation wireless transceiver architectures and RF/analog and mixed signal circuits.

Technical Skills Used

Matlab, perl, Unix, analog circuit design, Verilog-A, Verilog, Verilog-AMS

- Designed a software package for system level (link-budget) analysis of analog receiver design, Tool For Integrated Transceiver Analysis (TITAN), in Matlab / Simulink.

- Linux sys admin and technical editor

- Designed pipeline A/D converters for multi standard wireless receivers.

Smartpipes Inc - Columbus, OH

Software Developer - 2001 - 2002, hours per week: 20

Smartpipes Inc was a startup providing software to automate network deployment and router configuration. Non technical users could use a web interface to configure networks and policy was deployed to routers in XML packets.

Technical Skills Used

C++, XML, version control, BizTalk server, SQLServer.

- Developed internal productivity software in C++ for streamlining software development processes

- Evaluated build/buy decision for XML translation services, ultimately recommending use of MS BizTalk with some custom scripts to integrate into the Smartpipes product. Designed XML translation protocols and procedures, administered BizTalk server, and worked with customers to understand XML feature requirements.

Lucent Technologies - Columbus, OH

Software Intern - May 2000 - August 2000, hours per week: 40

The Component Information Database (CID) team developed and maintained a large database of components used in circuit board designs for Lucent telecommunication products. Database was used for purchasing and design decision making.

Technical Skills Used

Visual Basic, MS Access, relational databases.

- Developed a Visual Basic tool for MS Access to generate reports for circuit board components used for Lucent telecommunications boards. Worked with Component Information Database team to resolve data inconsistencies and define tool functionality.

Icon Technologies - Mayfield, PA

Software Intern - May 1999 - August 1999, hours per week: 40

Icon Technologies provides internet service and custom software development.

Technical Skills Used

Java, SQLServer, Visual Basic, relational databases.

- Developed custom billing software in Java, including backend integration with Microsoft SQLServer and front end design in Java Swing. Developed database schema for storing billing information and reporting functionality for analyzing invoices.

- Developed backend interface to IBM AS400 for visiting nurse software in Visual Basic.

Education

- B.S. Electrical and Computer Engineering, The Ohio State University, March 2003

- M.S. Electrical Engineering - Analog Circuit Design, The Ohio State University, June 2004

Talks & Tutorials

- PyCascades 2018 IoT Communication in Micropython. Talk about communicating between IoT devices. video

- PyCon 2017 IoT workshop, also presented to the PDX Python User Group in March 2018 Assembled 50 prototype boards with ESP8266 micro controllers and temperature sensors to teach micropython basics, MQTT, and IoT security concepts. video github

- Portland Data Science Group November 2016 "Introduction to Object Oriented Data Science with Python"

- PyDX October 2016 Internet of Cats: micropython for mews. Talk given at Portland's local Python conference about using micropython on the ESP8266 wifi module to display

cat pictures on a Nokia 5110 LCD screen. Cat pics could be requested via HTTP from the ESP8266. video github

- AlterConf October 2016. Spoke about my experience as a FTM in tech. video

- LA Community College August 2016. Tutorial on building scalable web data pipelines in Python

- Toorcamp June 2016. lead a workshop introducing developers to the campnear.me API

- PyCon May 2016. Tutorial on building scalable web data pipelines in Python. video github

- Intel Software Professionals Conference 2013 The Hitchhiker's Guide to Async JavaScript

Publications

- January 2017, State Management with React/Redux

- December 2016 National Parks Weather with React

- October 2016 An Introduction to Object Oriented Data Science in Python

- September 2016 Advanced Google Maps with JavaScript

- August 2016 Interactive Mapping with Python, GeoJSON, and JavaScript

Honors and Awards

- 2016 PIAAC-3 day training award for social sciences research.

- Demolicious, Feb 2016. campnear.me was selected as one of 4 contenders for this competitive demo event during Portland Startup Week and was a crowd favorite.

- 2010 Intel CCDO Department Recognition Award. Recognized for root causing performance issue and creating a standardized solution to be used on all Intel microprocessors. One of a handful awarded to the microprocessor design team of 500+ members.

- 2003-2004 Semiconductor Research Corporation / Intel Master's Scholar. One of thirteen awarded nationwide for Master's research in semiconductor related programs.

- 1998 National Buckeye Plus Scholarship recipient, Ohio State.