**John W Carlson**

[carlsonsolutiondesign@gmail.com](mailto:carlsonsolutiondesign@gmail.com)‬‬‬‬ (712) 369-1032

**Objective:**

Development of 2D and 3D graphics visualization and conversion software, 3D graphics program synthesis.

**Primary Technical Skills:**

* ***Specializes in:*** Blender Python import/export, 3D graphics format and binding conversion and program synthesis, data visualization, networking, Java, JavaScript, Python, Windows, Mac, Linux, prototyping, generalism
* ***Graphics:*** X3D, X3D JSON, X3DOM (w/ JavaScript), X\_ITE, some JOGAMP, JOGL, and Java3D, OBJ file format, naylib
* ***Languages:*** Python (4),JavaScript (7), Java (16), Perl (10), TypeScript(1), X3D, PHP(1), JSON (1), XML (5), SVG (1), CSS (10), HTML5 (2), HTML (15), Groovy(<1), Business Basic II (General Ledger, Accounts Payable, Accounts Receivable, Payroll)
* ***Database APIs:*** JPA (1), JDBC (13), Django (1),DBI (7), GORM (<1), Google AppEngine (<1)
* ***APIs:*** Google Maps, YouTube. Google Sheets
* ***Databases:*** Oracle (20), MySQL (1), Unify (2), PostgreSQL (1), Redis (<1), MongoDB(<1), CouchDB(<1), ElasticSearch (<1)
* ***Graphical User Interface Libraries:*** Angular JS, Angular 2, Angular 5, Java Swing (5), JQuery (2), JQuery-UI (1), Highcharts (1), Kibana, DataTables (1), Gnuplot (1), JfreeChart (1), D3.js (1), HTML5 Canvas (2), Google Maps
* ***Middleware/Frameworks:*** Apache, NGINX, Java EE/J2EE (14), Weblogic (4), Glassfish/iPlanet (3), Spring (4), Apache (3), Node.js (2), expressjs (1), Heroku (<1), Modulus (<1), Meteor (<1), OC4J (2), Grails (<1), Microsoft Azure (<1), AWS
* ***Web:*** Oracle Web Services (1), JAXWS (1), REST (1), Java Web Start w/ JNI & JNLP (4)
* ***Template Languages:*** XSLT, Struts2/WebWork (2), Struts1 (1), JSF (3), ADF (1), Trinidad, IceFaces(2), HTML::Mason(4), Handlebars (<1)
* ***Operating Systems:*** Linux (RedHat, Ubuntu, Oracle EL, Debian), Windows (11, 10, 8.1, 7), MacOSX (Tiger, Snow Leopard, Mavericks, Yosemite, El Capitan, Sierra), Solaris/SunOS
* ***Design:*** OO Design, UML, Relational Design, Visio, MySQL Workbench, E-R Diagrams
* ***IDE, Editor:*** Vim, Eclipse (7), MyEclipse (2), STS (<1), GGTS (<1), NetBeans (2) - X3D-Edit (<1), Xcode (<1), IntelliJ (<1), ace (<1)
* ***Testing:*** HttpUnit, JUnit, Jmeter, Karma, XmlUnit
* ***Configuration Management:*** Git, Github, svn, JIRA, AccuRev, Maven, CVS, Make, Ant, Cruise Control, Perforce, Imake, Jenkins (<1), CMake (<1), autoconf (<1)

**Other Skills:**

* ***Languages:*** SQL (20), PL/SQL (1), XPath/JXPath(1), XSL(1), Pascal, Fortran, Icon, Prolog, Lisp, some Objective-C, Applesoft Basic, Csh & bash, Regular Expressions, YACC, Lex
* ***Database APIs:*** Toplink Essentials (1), TopLink (2), JMS (1), Oraperl/DBD::Oracle (4), Oracle AQ(1), SunEric (2), MatrixOne MQL (2), PhpMyAdmin, Ibatis (<1)
* ***Graphical User Interface Libraries:*** Java: AWT (2) GWT (<1), C++: InterViews (3) some Qt, C: XView SunView (2) Xaw X11 Motif (1) curses (1), Objective-C: (some) OpenGL Cocoa Touch; Perl Web (10)
* ***Middleware:*** Tomcat (1), Apache (4),MatrixOne PLMS (2)
* ***Networking & Cloud:*** BSD Sockets, WinSock, Java Sockets, Java RMI,Google App Engine, socket.io
* ***Operating Systems:*** Windows XP (4), Windows 98, Windows 2000 (1), Linux (Fedora, CentOS, Debian, Mint, Cygwin) (7), BSD Unix (4), Ultrix (2), CP/M (3), VMS (<1)
* ***Hardware:*** Dell, Sun, iMac, DEC, Televideo, Apple II, iPod Touch, Serial lines, DSL modems, Cablemodems
* ***Template Languages:*** Java Server Pages (JSP) (14), JSTL (2), Facelets (2), Tiles (1)

**Work Experience:**

***Carlson Solution Design*** June 2012 – February 2016/June 2016 – Present

Data Visualization Developer and Tester (volunteer).

Responsibilities

* Created JSONverse, a collaborative X\_ITE environment for multiple groups accessing and publishing 3D scenes.
* Wrote test package for testing Web3D Consortium’s X3D Java Scene Access Interface Library (X3DJSAIL), patched X3DJSAIL. Generated Java, JavaScript, Clojure, and Python code from JSON via DOM in JavaScript, wrote test scripts, collected and analyzed errors, did roundtrip analysis and differencing of JSON and XML, wrote bug reports to developers at Web3D Consortium. Wrote python and JavaScript layer on top of X3DJSAIL.
* Created C++ Object Notation (CPPON), ANTLR4 grammar, and conversion to DOM.
* Created a X3D JSON schema by parsing an object model in XML and generating JSON, wrote interfaces to various schema validators.
* Modified and ported XSLT scripts for XML -> JSON, Java and ECMAScript translation.
* Designed database and wrote downloading and storing code for US census data.
* Wrote X3D JSON loader to load JSON into HTML/XML DOM in JavaScript. Java and C++, a prototype expander for X3D JSON, a post-process X3D JSON flattener, and integrated and modified JSON schema validators. Also, I wrote a tool to validate types in JSON schema for the flattener. Wrote test scripts in a combination of Node.js and Bash shell scripting. Designed X3D XML documents and converted XML documents to JSON. Converted X3D JavaScript and ROUTEs to HTML5 JavaScript and Event Handlers.
* Implemented JavaScript multiuser authoritative server and meta-server on modulus.io using Node.js, Express.JS/socket.io and REST. Wrote unit tests and validation of REST parameters.
* Integrated a Twitter Sentiment analysis app in JavaScript with a map visualization showing tweets.
* Created visual web graphs for medical ontology using D3.js
* Created prototypes with JavaScript physics libraries (Box2D)
* Android phone development for Epic Game Ads
* Rendered spherical equations in X3D, X3DOM, X\_ITE, C, recorded animations
* Coordinated writing Open GL ES shaders for animated spheres and spherical equations, ported shaders to PlayCanvas, X\_ITE, Open GL ES
* Co-developed IRC voting bot in PHP
* Developed two quote bots for IRC.

Awards:

* Awarded Web3D Consortium Membership for work on X3D JSON loader and tools related to the X3D JSON format

Environment & Technologies: Java, JQuery, NetBeans, JavaScript, PHP, Heroku, Modulus, Meteor, MongoDB, express.js, GitHub, socket.io, node.js, Mac OS X, Windows 8, Windows 8.1, Windows 10, Android, D3.js, MySQL, Website Builder, X3D, X3DOM, X\_ITE, Angular, Kibana, Logstash, Bash, MingW64

***Maelstrom Development***

Programmer (volunteer) March 2017, February 2020

Responsibilities

* Wrote hex-grid code, with zooming, panning, labelling and partial small map overview for 2D game.
* Wrote XML+JSON to Python
* Looked into using Ludii
* Looked in using Pyside2-Designer.
* Wrote Python script to take a spreadsheet of cards and produce C++ classes and constructors for the cards for Doom Trooper card game.

Environment and Technologies

* SFML, C++, Python

***Orator's Heart, BusyVine*** October 2017 – Dec 2017

Video Sharing Communities for Indigenous Orators, Crowd sharing and Crowdfunding Video Community (BUSYness VIrtual NEtwork).

Responsibilities

* Designed and wrote webapp for searching for videos found on Google Sheets API and Youtube API, video image display, video embedding, JSON parsing and formatting, PHP Youtube API client
* Hand testing of client

Environment & Technologies: Node.js, PHP, Google Sheets, Youtube API, Express, Angular 5, HTML5, CSS, JavaScript, TypeScript, Webpack, Windows, Heroku, Linux

***Indie Film Network, LLC***

Chief Research Officer (volunteer) October 2016 – December 2016

Responsibilities

* Designed data model
* Managed a consultant doing research on REST APIs for IFN.
* Prototyped Android app for geographic searches.

Environment and Technologies: PowerPoint, MySQL, REST, Cake PHP, Android Studio, Android

***Oxford International***

Consultant, client GE Lighting. Mar 2016 – May 2016

Responsibilities

* In an agile environment, provided software development expertise developing Angular and JavaScript web frontend, Java backend, REST/HTTP services communication, with ActiveMQ messages and PostgreSQL database to GE for the purposes of wireless outdoor lighting control
* Jmeter performance testing
* Did initial setup of UDP, HTTP and HTTPS Nginx load balancer
* Reenabled Karma testing environment
* Drew network map based on D3.js. Fixed graphs for correct time zone behavior

Environment & Technologies:

Java, JavaEE, Centos 5, Windows 7, ActiveMQ, Apache, Eclipse Mars, JQuery, Angular.JS, Google Maps, D3.js

***Logos Technologies, Inc.*** Jun 2011 – May 2012

Contractor

Responsibilities

* Implemented rule creation (forms) and editing, storage and JSON generating web GUI for a cybersecurity tool. Interfaced with honeypot engine to provide tracking of triggered vulnerabilities.
* Prototyped the user interface
* Created dynamic “workflow” visualization (polled database for updates)
* Did database design and implementation based on high level documents produced by architect.

Environment & Technologies: Ubuntu 11.10, Python, SVG/Raphael, Django, Data Tables, MySQL, JSON, JavaScript, PHP (prototyping), MySQL Workbench, git, redmine

***Lawrence Livermore National Laboratory*** LLNS Oct 2007 – April 2013

University of California Aug 1991-Sep 2007

Computer Scientist/Math Programmer/Application Developer (SES.3)

For the **Joint Genome Institute**, I wrote the Integrated Tracking System (ITS) for tracking final deliverables and associated metadata through the facility. I produced and consumed JSON REST web services, created JSON schema files for validating JSON, and created test data. We used Groovy on Grails, IntelliJ, Eclipse, CouchDB, Jenkins and git, as well as working with a LIMS.

For the **National Ignition Facility** (NIF), a 192-beam laser, developed software for multiple control and data visualization systems. Developed a Java Swing and Perl web app, OIDV, for visualizing defects on optics with images and overlays, a Perl web app, Quicklooks, for in-shot visualization using images, dynamic plots, scalar data collected at sub-second resolution over several days. Created movies from images. Wrote a Java Swing app and web app, called the change manager for shot setup and approval, adding new diagnostic systems. Implemented post shot Java Web application using images, plots and scalar data. We used many different technologies, including Highcharts, GD, JSF, IceFaces, Trinidad, JPA, JDBC, YourKit, Eclipse, JIRA, Oracle Windows 7, Windows XP, Mac OS X, Linux, Windows 2000, Struts, JSF, Maven2, CruiseControl, HTML::Mason, Tiles, Facelets, JQuery, JDBC, JPA, TopLink, Oracle, SQL, PL/SQL, Ibatis, NetBeans, UML, Glassfish, WebLogic, OC4J. I also wrote design documents for OIDV. We followed a Software Development Lifecycle and used Agile and Scrum development practices in a formal configuration management environment.

For the **Engineering Records Center** (ERC), primarily working with NIF drawings and metadata, we produced several Perl web and Java web apps, including an enterprise configuration management system to 1000 users, software for archiving documents and drawings to film (**technical lead**), a part-serial number system (**technical lead**), and a digital job order sytem for print orders. We developed a workflow for engineering documents and drawings, developed a database schema. I mentored other members of the team and did pair-programming with them. We used Windows XP, Solaris, iPlanet (now Glassfish), Perl, Oraperl, Java, WebWork (now Struts2), Film Archive Writers, MatrixOne Engineering Central, Matrix Query Language (MQL), Java Server Pages (JSP), Oracle, and NetBeans (form designer).

For the **Engineering Directorate**, I designed and developed a salary management system and an office space charging system. We used Solaris, HTML, Oracle, Java, JSPs, SQL, and web technologies. I was a full-stack developer on this project, implementing SQL queries and an EJB-like interface.

For the **American textile industry** (AMTEX), We designed and developed a secure network publishing and subscribing system called TEXNET C and Java. I wrote the GUI and UI network interface with Java Sockets and AWT on Solaris.

For **Wright-Patterson Air Force Base**, and **Veteran's Hospital, Long Beach**, and **LLNL**, we designed, developed and delivered an electronic commerce purchasing and payment called GATEC (Government Acquisition Through Electronic Commerce). We developed and performed the first automated EDI/X12 Payment over the Internet using RSA encryption and Privacy Enhanced Mail I co-designed with developers from **Bank of America**. I wrote the RFQ and Purchase order applications. We authored an Integrated Development Environment (IDE) and iconic programming by demonstration language called Translator’s Workbench/Translator Engine to translate from EDI/X12 formats to proprietary formats and back, used for RFQs, Purchase Orders, Invoices and Acknowledgements (**technical lead**)--I wrote several “Desktop Objects,” including Calculator, Date Calculator, X12 Branch, and Database Query as well as the acknowledgement code (997s), persistence, XML parser and code generator. We proposed and implemented an s-expression based cross-platform distributed and non-distributed user interface protocol and libraries. We used Solaris, C++, Oracle, InterViews, Windows, Perl, YACC, and Lex. Created entire system build script in Imake. Tested buildscript until it and all the modules worked.

For the **Defense Logistics Agency** we wrote 2 distributed capacity planning systems and a prototype attribute value database and user interface which was icons and lines on top of a geographical image.

I’ve worked on several other projects at LLNL, including a system for analyzing and annotating remote sensing images, need-to-know based access control of documents, GIS, and full-text search tool, and GIS-based contaminate tracking. We used Motif, Java, C and C++ and PostgreSQL.

**Publications:**

"A Visual Language for Data Mapping," OOPSLA 2001 Workshop on Domain-Specific Visual Languages

“A JSON Encoding for X3D” Web3D 2016

**Miscellaneous:**

Founder of the java@llnl.gov mailing list

Github: <https://github.com/coderextreme>

**Training:**

* C++
* Holub (Learning Patterns by looking at code)
* Object Oriented Analysis and Design
* Webucator PL/SQL
* MatrixOne

**Education:**

B. Sc. Computer Science/Math University of California-Davis. 3.86 GPA

Minor in Geography w/ a cartography course. Graduate level classes in 3D Computer Graphics

**References:**

Brian Lopez

Bill Maurer

George Chamales

Steve Hahn

Barbara Campbell

Jeffrey Hysong

“You are always perfect in many aspects of management. I really like it.” – Dik Wessels