Paul Dugas

Senior System Architect & Full Stack Engineer

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30 years in professional software development
15 years in software, network and platform design

EXPERIENCE

Dugas Enterprises, Canton — *Owner*

1997 - PRESENT

Independent consultant for various in-house and client projects.

Serco, Reston/Atlanta — *Project Lead & Consultant*

2013 - 2019

Consultant and employee supporting ITS maintenance and operation projects in Georgia and Virginia as well as BD efforts elsewhere in the US.

PRA, Marietta — *Consultant*

2013 - 2014

Consultant supporting development and operation of radar and signal processing R&D.

TRW, Atlanta — *Systems Engineer*

1992 - 1997

Employee working on GDOT's first transportation management system for Atlanta in preparation for the 1996 Summer Olympics and beyond.

Loral, Norcross — *SysAdmin*

1992 - 1993

Co-op SysAdmin for electrical engineering CAD and simulation systems.

CMI, Centerville — *Programmer*

1987 - 1999

Co-op and consultant developer for a precision electronic and dimensional measurement calibration and repair lab.

EDUCATION

GaTech, Atlanta, GA — *Bachelor, Computer Engineering*

JULY 1987 - JUNE 1993

Electrical & software engineering with computer science.

SKILLS

Full Stack Engineer & Architect

Effective Communicator

Software Developer

DevOps & SysAdmin

Team Leader

Business Owner

TECHNOLOGIES

C/C++, Java, Javascript, PHP, Python, Perl, CUDA, Shell, SQL, CSS, HTML, & Make Programming

CentOS, RHEL & Ubuntu Linux

Terraform Deployments to AWS, Docker & VMware

GitLab CI/CD

PostgreSQL, MariaDB, SQL Server, InfluxDB, TimescaleDB, Redis, Memcached Storage

ExtJS & AngularJS SPA Frameworks

Symfony APIs

Doctrine & Hibernate ORMs

Asterisk VoIP PBX

Cisco, HP, Juniper & F5 Networking

PERSONAL

Married to another engineer, two kids. Healthy. Avid reader of coding books. Home automation nut. My home's IT is crazy. Youth baseball coach. Retentive. Linux has been my daily OS for 20+ years.

PROJECTS

ITSentinel — *CMDB at DugasEnt, 2016-Present*

Design and development of a CMDB platform for geographically distributed IT/ITS deployments. Custom data model, business logic, REST API and website in Symfony PHP with a PostgreSQL and TimescaleDB database. SPA web app built using Sencha ExtJS with Google Maps and D3 and Cytoscape.js diagrams. Fully automated DevOps for unit testing, building code and Docker image and deployment via Terraform to on-site Docker/VMware platforms for staging and testing and AWS for production environments.

IMMS — *Intelligent Maintenance Management System for Serco, 2013-2016*

As a consultant in 2013, designed and implemented a replacement for Serco's original IMMS from 2009, a port of the original ITS Wiki from GDOT loosely integrated with IBM Maximo. Included alignment tools to identify inconsistencies between inventories and details of locations and devices in the two systems.

As an employee 2014-2016, implemented the IMMS again for the Statewide ITS Maintenance project at VDOT. This time Maximo's data model was extended to serve as a single CMDB with the NMS and wiki slaving off it.

OI/E3PS — *GPU Radar Data & Signal Processing for PRA, 2012*

Developed software to implement PRA's orthogonal interferometry radar processing and precision positioning algorithms. Involved high speed DAQ hardware, complex GPU-accelerated processing and a custom UI using GL buffers for live radar displays. Provided views for operators and customers to see how the radar was operating instead of waiting for offline post-processing more typical in R&D systems.

ITS Wiki — *Field Equipment Inventory for GDOT, 2006*

As a consultant for GDOT, developed a custom integration of Nagios and MediaWiki to provide an intuitive and accessible intranet website to present configuration details and live status for hundreds of ITS field networks. Custom MediaWiki extensions pulled live status data from Nagios to colorize and populate maps, network diagrams and other views of the system for maintenance and construction teams.

ETEC — *GPS Data Collection System for PRA, 2005*

Developed software to interface with an array of GPS receivers to track satellites and calculate angle-of-arrival data to update a tropospheric weather model used to characterize long-range radar propagation.

GeorgiaNavigator.com — *Live Traffic Website for GDOT, 1997*

Sole developer for GDOT's original traffic website providing video snapshots, dynamic graphics, interactive maps and raw XML content for consumption and integration by the public and regional media companies.

NaviGAtor ATMS — *Transportation Management System at GDOT, 1993-2009*

Design, development, maintenance and operation of GDOT's ATMS as an employee of TRW and later as an independent consultant. Procurement specs for freeway traffic management equipment, communication networks and multiple data centers. Video control system, GIS mapping software, display wall manager, detector data fusion system and various internal tools and software frameworks.

DevOps-lead responsible for an open-source stack that fully automated unit testing and builds in 1998 before modern DevOps existed. SysAdmin-lead for the main control center with a team of 6 engineers, admins and techs.

Software-lead with ~10 engineers, developers and admins adding drivers for new field devices, redesigning subsystems to accommodate new technologies, reviewing QPL submittals for spec compliance and compatibility and supporting ongoing systems expansion and maintenance projects.

TrafficKiosk — *Lobby Traffic Displays for GDOT, 2007*

Built an embedded Linux appliance to present live traffic maps, incident lists and streaming video on displays in lobbies and welcome centers statewide.

ChillerCheck — *Mobile App for Chillergy Systems, 2000-2008*

Developed a PalmOS application, companion sync library and web API to collect HVAC chiller performance data for use with energy efficiency analysis and predictive maintenance logic. Ongoing development and support as the company grew to over 250 deployments across the US and Central America.

CalCheck — *Mobile App for CMI, 1997-1999*

Developed a PalmOS application and companion sync tool for field data collection allowing calibration and maintenance technicians to work on-site without a computer.

NIST Trace Tool — *Standards Traceability for CMI, 1989*

Developed a custom database and application to generate reports detailing traceability of calibrated equipment back to NIST standards. Automated a labor intensive process that used to take hours to generate each report.

Calibration Lab Framework — *Calibration Automation for CMI, 1987*

Started out developing and maintaining numerous HP-BASIC programs to automate calibration procedures and data collection via serial- and GPIB-connected test equipment. Replaced them all with a consolidated framework that ran procedures defined by the lab director in a simple spreadsheet instead of being hardcoded. Virtually eliminated software maintenance effort for those tools and significantly increased lab efficiency.