
About I'm a Software Development Engineer interested in large scale systems and the Web. I have 3.5 years of experience in software engineering and have been programming for over 12 years. My primary development experience is in back-end programming in Java, C#, JavaScript, and Python; writing agent/batch/job-oriented systems for financial systems, system administration for Windows and UNIX, hardware/computer engineering and robust control software. A lot of the software I have designed and implemented is publicly available on [GitHub](#).

Other Résumé versions: [PDF](#), [One-page PDF](#), [MS Word](#), [One-page MS Word](#), [JSON Résumé](#)

Education

- **Master of Information Engineering in Computer Science**, 2015, Autonomous University of Nuevo León. Overall Grade 94.5/100.0

Courses:

- o Research Methodology
- o Quantitative Methods (Statistics)
- o Discrete Mathematics for Geometric Design
- o Programming and Simulation
- o Information Systems
- o Object Oriented Programming
- o Database Management and Design
- o E-Business Oriented Information Systems
- o Computer Science Seminar
- o Management of Information Technology Projects
- o Technologies for Internet Information Security
- o Technologies for Organizational Change
- o Information Technology Management and Planning
- o Decision Support Systems
- o Human-computer Interaction

- **Bachelor in Mechatronics Engineering**, 2012, Autonomous University of Nuevo León. Graduated with honors (*Mención Honorífica de Excelencia*), Overall Grade 95.9/100.0

Courses:

- o Basic Programming
 - o Probability and Statistics
 - o Discrete Mathematics
 - o Data Structures
 - o Advanced Programming
 - o Theoretical Computer Science
 - o Digital Electronics
 - o Object Oriented Programming
 - o Data Acquisition
 - o Robot Architecture
 - o Artificial Intelligence and Neural Networks
 - o Project Management
 - o Human-Computer Interaction
 - o Machine Vision
 - o Perception
 - o Machine Perception
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Experience

Self-employment/Freelancing, Monterrey, Nuevo León, Mexico

Instructor. 2015-2016. Coached job applicants and students on computer science and software engineering topics.

- Designed custom study plans based on assessment of the client's knowledge and skills via tests and interviews
- Did one-on-one mock interviews and provided feedback afterward
- Published implementations of data structures, algorithms, and solutions to programming problems. See [Data structures and algorithms in C#](#), [Software engineering problems in JavaScript](#), [Software engineering problems in C#](#), [pysweng: Software engineering problems in Python](#) and [Data structures and algorithms in JavaScript](#)
- Environment: Java, C#, Python, JavaScript, Node.js, .NET Core, Visual Studio Code, xUnit, JUnit, Mocha, Maven

Self-employment/Freelancing, Monterrey, Nuevo León, Mexico

Technical Writer. 2015-2016. Wrote technical documentation on topics such as programming, system administration, audio/video processing and production, and security.

- Published more than 45 technical notes at <http://pedroivanlopez.com/tech-notes>
- Some of the software tools and applications I wrote about are Fedora Linux, FFmpeg, Windows, Python, JavaScript, Node.js, OpenSSH, Git, Android, Anki, Cygwin, Audacity, among others
- Environment: Jekyll, Markdown, Fedora, Windows, Python

Infosys Ltd, Monterrey, Nuevo León, Mexico

Systems Engineer, January 2013 to February 2015. Contractor for a Fortune 100 multinational banking and financial services corporation. Development, administration and support team for a global trade finance application used mainly in North America and Asia

- Coded and tested new agents/batch-jobs and features in Java, C#, JavaScript and Windows Batch
- Designed and implemented a Windows Script Host script in JavaScript to retrieve scanned image and metadata files from the scanner workstations to our server and prepare for further processing
- Fixed 350 incidents, including code bugs, development of new features, customers with invalid data in production and outages
- On-call primary contact for 20 weeks
- Led 30 Request For Change procedures to install code updates and to update data via SQL scripts
- Supported production and test environments for clients and other teams in the bank
- Knowledge management via documentation of known issues and fixes, to coach offshore resources
- Environment: Java, .NET, C#, JavaScript, SQL, Bash, Hibernate, Spring, Eclipse, Toad, ClearCase, RedHat Linux, Windows Server, Autosys, Windows Script Host

Center for the Development of the Software Industry, Monterrey, Nuevo León, Mexico.

Software Engineer, October 2012 to January 2013. Tested and validated a financial web application and platform

- Performed testing and quality assurance of an enterprise financial Web platform for a Mexican bank, implemented in Java Enterprise Edition and JavaScript
 - Types of tests performed: black box, system, functional, acceptance
 - Environment: Internet Explorer, Mozilla Firefox, Excel, JavaScript
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School of Physics and Mathematics at UANL, Monterrey, Nuevo León, Mexico

Research Assistant (internship), August 2011 to February 2012. Research topics: control engineering, robust control, linear systems, filters.

- Developed and maintained robust control systems software in Python, MATLAB and Simulink
- Co-authored one published paper: Basin, M.; Serna, M.; Lopez-Hernandez, P.I., [Central energy-to-peak filter design for uncertain linear systems](#), Control Conference (ASCC), June 2013
- Performed system administration of workstations and maintenance of hardware units
- Environment: Python, MATLAB, LabVIEW, NI Elvis, LaTeX

School of Mechanical and Electrical Engineering at UANL, Monterrey, Nuevo León, Mexico

Laboratory Assistant (internship), February 2012 to August 2012

- Supported students in designing and troubleshooting programs in Python, MATLAB and LabVIEW
- Performed system administration of workstations and maintenance of hardware units
- Assisted professors with teaching electronics and programming during laboratory sessions
- Environment: Python, MATLAB, LabVIEW, NI Elvis, LaTeX, BASIC

Computer Skills

- **Languages:** Python, JavaScript, C#, Java, SQL, HTML, CSS, Bash/UNIX Shell Scripting, VB.NET, MATLAB, LabVIEW, XSLT, LaTeX
- **Data/Databases:** Microsoft SQL Server, Oracle, MySQL, SQLite, JSON, YAML, XML
- **Technologies:** .NET, Java, Node.js, xUnit, ASP.NET 4 & 5, ASP.NET MVC 5, Docker, Spring, Hibernate, ASP.NET Web Forms, Java EE, Jekyll, Sphinx documentation tools, leJOS
- **Design patterns:** Dependency Injection, Object-Relational Mapping (ORM), Module, Factory method, Iterator, Reactor, Singleton, Observer
- **Architectural patterns:** Inversion of Control, Event-driven architecture, Model-View-Controller
- **Applications:** Microsoft Visual Studio, Visual Studio Code, Git, ClearCase, Toad, Eclipse, Cygwin, Vim, GNU Make, Ant, IPython, OpenSSH, Maven
- **Operating Systems:** UNIX (Fedora, Ubuntu, Red Hat Enterprise Linux, Android), Microsoft Windows (Server 2003, XP, Vista, 7, 8, 10)
- **Other:** Linux user for 8 years, proficient with UNIX command line interface, technical documentation writing, homebuilt computers enthusiast

Languages

- **English:** Full professional proficiency
- **Spanish:** Native speaker

Projects

- **ASPNET5CO:** Advocacy and Community. Efforts to advocate the ASP.NET Core framework, <http://pedroivanlopez.com/aspnet5co>
 - **Data structures and algorithms in C#:** <https://github.com/lopezpdvn/DataStructuresAlgorithmsCSharp>
 - **mazerob:** Bluetooth-remote-control robot implemented with Java Virtual Machines on a PC and a Lego NXT Brick, <http://pedroivanlopez.com/mazerob>
 - **printer73x:** A computer numerical control system for printing binary images, <http://pedroivanlopez.com/printer73x>
 - **cerca:** A distance measurement system running on a personal computer and an 8-bit microcontroller <http://pedroivanlopez.com/cerca>
 - **pysyspol:** Cross-platform system policy for applications and environments with Python <https://github.com/lopezpdvn/pysyspol>
 - **syspol-js:** Cross-platform system policy for applications and environments with JavaScript <https://github.com/lopezpdvn/syspol-js>
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- **dotfiles**: Miscellaneous configuration files and directories
<https://github.com/lopezpdvn/dotfiles>
 - **Software engineering problems in C#**:
<https://github.com/lopezpdvn/SoftwareEngineeringProblemsCSharp>
 - **resources-viewer**: Browser based static app for viewing resources
<https://github.com/lopezpdvn/resources-viewer>
 - **timeman**: Simple time management types, <https://github.com/lopezpdvn/timeman>
 - **syspol**: Cross-platform system policy for applications and environments
<https://github.com/lopezpdvn/syspol>
 - **swebserv**: Java program that simulates Denial-of-service attacks on HTTP/web servers
<https://github.com/lopezpdvn/swebserv>

For other projects see my [technical notes](#), as well as my [Github](#) and [Gist](#) profiles.

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- Publications**
- Control Conference (ASCC). 23 June 2013. <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6606296&isnumber=6605987>
This paper presents the central finite-dimensional energy-to-peak filter for linear systems that is optimal with respect to a modified Bolza-Meyer quadratic criterion including the first degree state-dependent term and the attenuation control term with the opposite sign. The obtained solution is based on reducing the original energy-to-peak filtering problem to the corresponding mean-module filtering problem, using the technique proposed in [1].
 - Technical notes. Self-published, <http://pedroivanlopez.com/tech-notes/>
Technical documentation on topics such as programming, system administration, audio/video processing and production, and security.
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