Senior Software Engineer (Python/C++) Senior Software Engineer (Python/C++) Senior Software Engineer (Python/C++) - Cadence Design Systems Pleasanton, CA 10+ years of solid experience in various fields of Software Development: Operating Systems, Full-Stack Web Development, Algorithms, Machine Learning and Data Science. Experienced in using Python, Django, PHP, C++, CSS, HTML, XHTML, JavaScript, jQuery, XML, AJAX and JSON for developing web applications. Extensively worked on Python 3.5/2.7 (Numpy, Pandas, Matplotlib, NLTK and Scikit-learn) Experience of working with relational databases like Oracle, SQLite, PostgreSQL, MySQL, DB2 and non-relational databases like MongoDB and Cassandra. Experience in designing and implementing complex, high performance and scalable distributed object-oriented applications using C, C++, JavaScript, Python, Java, Ajax, JSON and XML. Expertise in Shell, Perl and Python Scripting for Environment Builds and Automating Deployment. Experience in using advanced debuggers and performance analyzers: GCC, GDB, MDB, DTrace and Oracle Performance Analyzer Extensive experience in software development in modern C++ and using libraries such as Boost. Experience in SQL scripting and used many different Databases: MYSQL, PostgreSQL, NoSQL, MongoDB Development in modern JavaScript backed frameworks and libraries: Node.js, Express, Loopback Experience in using Python libraries for data science, data manipulations, analysis and machine learning; Numpy, Pandas, Scikit-learn Familiar tools in big data and distributed processing such as Hadoop and Spark. Experience in using platform as a service (PaaS) to build, run, and operate applications entirely in the cloud such as Heroku. Experience in automating deployments using Jenkins and maintaining the build pipeline flow. Expertise in Atlassian Tools Confluence and Jira. And also used ANT scripts, Make, Gradle and Maven for Build process. Experience in all Phases of software life cycle with emphasis on designing, developing, implementation, deployment and support of distributed enterprise scalable, secure applications. Responsible for all aspects of the software configuration management process including code compilation, packaging, deployment, release methodology and application configurations. Hands on experience in Systems Setup, configuration, Upgrade, Maintenance, Performance monitoring and troubleshooting on different Linux platforms: Debian, CentOS, Ubuntu,

RedHat and Amazon Linux. Experience in System Testing, DVT (Development verification testing) and operations support. Experience in Branching, Merging, Tagging and maintaining the version across the environments using SCM tools like Subversion (SVN), GIT (GitHub, GitLab, Bitbucket). Good understanding of the principles and best practices of Software Configuration Management (SCM) in Agile, scrum, and TDD methodologies. Closely worked with development, QA and other teams to ensure automated test efforts are tightly integrated with the build system and in fixing the error while doing the deployment and building. Good analytical problem solving, leadership skills and quick to adapt changes. Team player with excellent interpersonal skills, self-motivated, dedicated and understanding the demands of 24/7 system maintenance and has good customer support experience. Work Experience Senior Software Engineer (Python/C++) Cadence Design Systems - San Jose, CA June 2016 to Present Project Description: Member of Voltus team, one of the most profitable tools from Cadence where their customers were Apple, NVIDIA, Samsung and many automatic companies. Voltus is an expensive software which performs static and dynamic power profiling of ICs and SOCs. Designed and implemented various multithread algorithms to enhance Voltus performance. Learned and used many techniques to monitor and evaluate the performance of individual functions and methods in a highly multi-threaded environment. In Cadence, Designed and implemented various multithread algorithms (using pthread in C/C++) to enhance Voltus performance. Massively used DTrace, Oracle Performance Analyzer and Cadence's internal Path/Event Analyzers to diagnose the problem, detect performance bottlenecks and finally resolve them. Responsibilities: Developed various multithread algorithms to enhance Cadence's static and dynamic power profiling tool (Voltus). Improved the performance and flexibility to run designs in private- or public-cloud environments using the massively parallel and advanced distribute-processing algorithm. Implemented highly multithreaded and advanced distribute processing algorithms to enable cloud-based computation and gain better performance. Develop web-based tools to support the transportation industry with their training requirements, scheduling needs and carrier and load brokerage services. Part of the scalability team where scaled Voltusup to 100s of machines and 1,000s of CPUs delivering faster turnaround times on designs up to billions

of instances, with high accuracy Used multiple tools and technologies such as C++ Boost, Python and shell scripting in Unix environment In charge of build, compile and deploy with thousands of packages and libraries with complex dependencies Building Apache Tomcat based application. Worked on object-oriented programming (OOP) concepts using Python, Django, and Linux. Support devops activity (AWS, Development, Deployment, Production support, Log Analysis, Splunk) Efficiently utilized various performance and even analyzer to detect performance and scalability bottleneck. Diagnosed scalability issues and re-implement the modules with poor performance. Devise and define automation strategies for simulation and emulation that involve cluster tools and continuous integration. Development of provisioning scripts to deal with testing farms of Linux Images within AWS. Created security patches for several open source utilities. Re-implementing existing components using POSIX threads. Exposed to a fast pace and massive version controlling where different teams updated various components on daily basis. Technologies: Scalability, Performance, Python, C++, Distributed Processing, Oracle Performance Analyzer, Cloud, Multithread, Build, POSIX, Linux, Shell Scripts, Git, Performance Analyzer. Computer Aided Design community 2018 to 2018 Project Description: Extensive research and development on extending "computers lifetime", where algorithm design, optimizations and machine learning were everyday tasks. Presented my entire work as a large software called "RAIN" which was very well-received in DAC 2018 (dac.com is the most prestigious and highly industrial conference with the lowest acceptance rate in Computer Aided Design community). Parts of my responsibilities as a Ph.D. candidate and research scientist was also teaching. I've taught many courses which are available in my resume. In particular, I have taught Computer Architecture, Operating Systems and designed many practical projects where I'm very familiar with advanced topics such as security, virtualization, pipelining, thread-level parallelism, SIMD, MIMD, branch predictions, caching and etc. RAIN is an industry tool performing reliability analysis of networks. Presented and well-received in DAC 2018 ? Mathematical modeling underlying physics reliability. Written in C/C++/Java/R/ Python ? Advanced graph algorithms and machine learning techniques: Regression, KNN, LVQ, PCA Responsibilities: Research and development of algorithms and

optimization methods for extending lifetime of computers in CAD lab in University of California, Santa Barbara. Development of various software and tools to mitigate aging and improve reliability. Developed skills and expertise in: Advanced [un]constrained [non]convex optimization, Advanced numerical methods Unsupervised learning and supervised learning, Classification, Clustering, Support Vector Machine, Regression analysis, Reinforcement learning, Neural networks, Stochastic processes, Markov model Genetic and evolutionary algorithms, Algorithmic problem solving Linux administration, Open source, Game engines, Networks and Kernels, Microprocessor/Microcontroller Developed RAIN: An industry tool performing reliability analysis of networks. Presented and well-received in Design Automation Conference 2018 Many advanced algorithms, numerical methods and machine learning techniques (such as MARS for regression analysis, SVM, KNN, K-Mean and algorithms and PCA for dimensionality reduction) are implemented in RAIN. Algorithm: Graph Theory, Artificial Intelligence, Genetic Algorithms Computer Architecture: CPU, Virtual Memory, Cache, Pipelining Operating System: File Systems, Multi-Threading, Network Data: Analysis, Big Data, Distributed Processing, MapReduce Machine Learning: Classification, Clustering, Regression, Dimensionality Reduction Deep Learning: Neural Networks, Hidden Markov Model Optimization: [un]Constrained [non]Convex, Numerical Methods Classical Statistical analysis and cross validations Accuracy, precision analyses, confusion matrix Techniques for dealing with imbalanced labeled data such boosting, aggregating, over and under sampling Implemented various tools in multiple languages: C/ C++ / Python, JavaScript and Java Advanced Machine learning and data science techniques were implemented to draw insights and extract useful information for the users Working in a collaborative environment with many professors, scientist, developer student and external collaborative from companies and research centers Published many scientific research papers Served as teaching assistant in many courses: Advanced Optimization for Machine Learning Applications, Operating Systems, Computer Networks, Computer Performance Evaluation, Introduction to Programming, System Design Methodologies, Research Methods and Skills Served as Problem-setter and judge in local programming contests. Technologies: Research,

Algorithm, AI, Machine Learning, Optimization, Python, Pandas, Numpy, Scikit-learn, MATLAB, C/C++, Java, JavaScript, GitHub, Linux, KNN, K-Mean, SVM, Data, Regression, Classification, Clustering, OS, Networks, Performance, Architecture Python/C/C++ Application Developer June 2015 to May 2016 Project Description: Member of Kernel team. Individually, developed an energy-cognizant scheduler for Solaris kernel which was used in large multicore systems with highly multithreaded apps. An in-depth understanding of Operating Systems was inescapable as I had to participate in meetings and conversations with people with a great level of experience (from Sun Microsystems era). Any flaw or mistake immediately was caught by them. Extremely challenging and hard bugs which easily resulted in head-scratching Kernel panics were my everyday tasks where I had almost no supervision to fix them. Work with the following compilers, performance analyzers, profilers and debuggers which felt very similar to some of GHS's products: GCC, GDB, MDB, OllyDbg, DTrace, Oracle Performance Analyzer. You may want to see my posts on StackOverflow. Responsibilities: Involve in business requirement gathering and specification analysis provided by internal customers Work to improve application performance tuning and query optimization where needed Developed an energy-cognizant scheduler for OS kernel in large multicore systems with highly multithreaded apps. Directly involved in improving OS level concurrency, synchronization and multi-threading Mutex, Semaphore and signaling Provide design, including documentation, of schemas, user interfaces, and other capabilities necessary to achieve functional requirements. Implemented business logic in Middle Tier using pluggable components, which were specified in the customized XML documents using Spring framework. Implemented a highly efficient scheduler inside the Solaris kernel Where in depth knowledge of operating systems was required Created specific images using Python Imaging Library for the custom images used for each book Implemented Business logic, worked on data exchange, processed XML and HTML using Python and its familiar framework Django. Written C/C++ patches to correct bugs as per the business specifications of the graphic driver as a product. Determine bugs hardware wise by capturing waveforms manually with mentor graphics tools. Used many languages such as C, C++, Shell and Bash scripting Advanced debugging using GCC,

GDB, MDB, DTrace Automated compile and build, MAKE and CMAKE Using Oracle internal development, build and deployment tools Continuous performance evaluation and assessment using Oracle Performance Analyzer Used Solaris and POSIX Threads to implement highly multithreaded modules Implemented an energy-aware dispatchers and queue to minimize the waiting and power cost Technologies: C,C++, Python, Oracle, Linux, Solaris, Kernel, OS, Scheduler, Multicore, Multithread, Oracle Build, Oracle Deploy, GCC, GDB, MDB, DTrace, Bash. Senior Python Developer Apple - Cupertino, CA June 2014 to May 2015 Project Description: Joined Apple's product reliability team. Individually, developed a tool (in C++, Python, and Perl) that extended Apple's products (mainly Apple Watch 1st generation) lifetime by 28%. Required to have a good understanding of the underlying components to be able to make a software whose job is to manage OS and Apps to decrease their loads on different hardware components and ultimately extend their lifetime. Also had a luxury of attending scary meetings with vendors such as Arm and Samsung where reliability was not even negotiable. Responsibilities: Research and Development in reliability analysis of apple products. Development of a tool for detecting, diagnosing and repairing interconnect networks reliability issues and violations. Working with many different teams across the company and externally with other vendors Involved in design and development of software systems to various clients in python, MongoDB, C, C++, and JSON on Linux, Embedded Linux, and Windows etc. Develops communication backend using laser. Worked on providing system security components using tail-f, NetConf, yang, C/C++, JavaScript, html etc. under Embedded Linux Object-oriented design of a large tool with various components where communicating with many other tools with passing data. Developed a fully automated continuous integration system using Git, Jenkins, MySQL and custom tools developed in Python and Bash Design and implementation of high-performance and high scalable algorithms in C++, Perl and Python Development of various components where performance and scalability was not negotiable Implemented continuous integration using Jenkins and involved in the deployment of application with Ansible automation engine. Cross talking and interfacing between many tools and software Integrating the tool with other internal tools existing in the design flow of Apple products,

software and hardware Highly automated process by Shell and Perl scripting Advanced Regex programming for fast text processing and data extraction Due to confidentiality, more details cannot be released about the projects and technologies. In charge of delivery and maintenance. Technologies: Object Oriented, C, C++, Python, Perl, Shell, Apple, Linux, Bash, Regex, Slack, Bash. Research Scientist/Software Developer Computer Aided Design Lab September 2012 to May 2014 Research Assistant/Software Developer BTL - Calgary, AB September 2011 to August 2012 Project Description: Research and development on networks reliability analysis and decision making under uncertainty and developed many tools for biometric applications from complex algorithm to data visualization. Responsibilities: Research and development in networks reliability analysis and decision making under uncertainty for BTL at University of Calgary, Canada. Involved in research, design and development, of data center management system. Involved in enhancement of a software gateway that acts as communication backend of system, Java multi-master, installer, security, OpenSSL upgrade of system. The components were designed and developed using C/C++, Java, Python, shell scripts, Databases (Oracle), FIPS etc. on various incarnations of Linux, using agile methodology Design and implemented many algorithms and tools for reliability analysis of networks in presence of noise. Used many technologies such as PHP, Perl XAMMP, LAMP, MYSQL and later Laravel Tested many networks by running the tools on different servers Wrote web UI using CSS, LESS and HTML Implemented a tool for reliability evaluation and power Analysis of networks Socket and network programming In depths Operating systems and computer networks Implemented a reliability analyzer: Continuous Probabilistic and Time-Variant Modeling of Networksin the Presence of Noise using Markov Random Field Responsible for planning and executing releases with external teams. Collaborated with different teams such as Biomedical Teams to identify needs and establish priorities. Technologies: Python, Probability, Reliability, Network, Sockets, MATLAB PHP, XAMPP, Perl, LAMP, MYSQL, Laravel, Debian, CSS, LESS, HTML. Research Assistant/Software Developer SMILE - Calgary, AB September 2010 to August 2011 Project Description: Research and development of algorithms and analysis for robots to learn visual and musical patterns. Implmented tools for signal, audio, video processoing for robots

and artifitial systems. Java/JVM/JRE/ JVM/J2EE were the main technologies I used. Responsibilities: Research and development in algorithm design and analysis for robots to learn visual and musical patterns. for SMILE Labat University of Calgary, Canada. Involved in component designs, code reviews using Java/C++, python design patterns, Web Services, JAPI, shell scripts, Databases (MySQL) etc on windows and Linux Audio Signal processing Implementing a Discrete Event Simulator to Evaluate Computer Systems Performance (C/ Python) Highly Optimized Implementation of FIR Filter in TigerSHARC Processor (Assembly and C++) Interfacing Blackfin Processor to Audio Peripherals and Controlling a Remote Controlled Car Implementation of a Signal Processing Filter (FIR) using Soft Processor A Dynamic Cryptographic Algorithm using Evolvable Hardware Clear documentation for build process and subsequent changes. Coaching and tutoring the programming teams for the ACM International Collegiate Programming Contest. Served as Teaching assistant in many courses: Pattern Recognition, Real-Time Embedded Systems, Number Theory, Computer System Design Technologies: Python, C++, Assembly, Signal Processing, Pattern recognition, Embedded Systems, Processors, HW/SW Codesign. Research Assistant/Software Developer DSD - Tehran, IR December 2008 to August 2010 Project Description: Research and development in software verification and testing using fault injection in functional properties for critical applications such medical devices. The applications and test systems were developed in Java where they were deployed into Apache Tomcat. Responsibilities: Automatic Input Stimuli Generation for System Verification to Increase Coverage Metric Model Checking-based Verification of Units Integrated with Mutation Testing Deployed the Java Applications into Web Application Servers like Apache Tomcat. Prototyping a Fault Injection Tool for Software Verification Developing Performance Aware Memory Mapping Algorithms Membership in the ACM chapter of University of Tehran and ACM programming contestant. Technologies: Software Verification, Software Testing, Java Servlet, Tomcat, JVM, J2EE, Spring, Hibernate, Junit. Software Developer University of Tehran - Tehran, IR May 2008 to May 2010 Project Description: Designed and developed an application to optimize and automate online course synchronization using using many technologies such as PHP, Perl XAMMP, LAMP,

MYSQL and later Laravel Responsibilities: Re-implemented some modules in a CMS system both in frontend and backend side Used many technologies such as PHP, Perl XAMMP, LAMP, MYSQL and later Laravel Admin/webmaster of Linux servers and 50+ Linux clients. Worked in Cross-Platform Environments like UNIX and Windows. Imported and Managed Multiple Corporate Applications into Subversion (SVN). Performed Version Control Subversion Checkouts via Shell Scripts. Executed User Administration and Maintenance Tasks including Creating Users and Groups, Reports and Queries. Worked as a System Administrator for the Build and Deployments Process on the Enterprise Server. Instructor of C/C++, Web Programming, Discrete Mathematics, Statistics and Probabilities, Workshop on Introduction to Linux Collaborated with QA team. Technologies: HTML, CSS, PHP, XAMPP, LAMP, MySQL, Perl, Linux, Bash, Shell, SVN. Education PhD in Computer Engineering University of California - Santa Barbara, CA MS in Computer Engineering in Computer Engineering University of Calgary BS in Computer Engineering in Computer Engineering University of Tehran Skills C+ (9 years), HTML (4 years), Linux. (9 years), MySQL (4 years), Python (7 years) Additional Information Technical Skill Set: Programming Languages Python, C, C++, Golang, JavaScript, Java, C#, CSS, HTML, ActionScript Shell Programming Perl, CSH, Bash, Python, PHP Web Programming HTML, CSS, JavaScript, SQL, jQuery, Django, Ruby on Rails, Express Python Libraries Jinga, NumPy, Urllib2, Unit Test, PyXB, Reportlab, lxml, qrcode, Zeep, Pickle Data JSON, XML, CSV, YAML Web Services SOAP, REST Mobile Applications Android, J2ME, IOS. Data Bases MySQL, MS SQL Server, Sybase, PostGres, SQLite, Mongodb, Couchdb, Dynamo, Redis. Operating System Windows, Unix, Linux, Ubuntu, MacOS, Android SaaS/PaaS Splunk, Salesforce, ServiceNow, Azure, AWS, GCP Web Frameworks Yii, ruby on rails, Expres.js, Google AppEngine, Django, jQuery UI, bootstrap, 960grid System, Compass, Angular.js, node.js jQuery, Ajax APIs Google, Facebook, Twitter Framework Cloud Computing OpenStack Networking TCP/IP, UDP, SNMP, TFTP, FTP, ATM, VoIP, SONET, FCAPS, TMN Virtualization Vmware, Hypervisor Tools PyCharm, Vi, Eclipse. Make, Cmake, Net-beans, Java Profiler, Maven, Jenkins, Gradle, Ant, tcpdump, purify, Wireshark etc Client Side Swing, JFC, XML, HTML, JSP etc Servers Administration and configuration, Suse , Debian Ubuntu,

WindowsAzure Web/App Server IIS, Apache, Nginx, Tomcat Technical Writing Tools Spark, MSWord, Excel, Pages, and Terminal Big Data Hive, Hadoop, Qubole, Scrapyng Search Engine Solr

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