

Shiva Talwar

Electrical Engineering | University of Waterloo



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hackerrank.com/shivatalwar

TECHNICAL PROFICIENCIES

- Exceptional experience with full stack software development including Java, Spring, React/Redux/Immutable, HTML5, CSS3
- Deep understanding of the architectures, protocols and algorithms underlying modern distributed systems
- Comprehensive experience with unit/integration test frameworks such as JUnit, Mockito, Enzyme, Chai, Cucumber, and Mocha
- Practical experience with Linux kernel development alongside ARM based FPGAs and application-specific IC systems
- Working experience with image processing such as template matching, finding contours, and object character recognition
- Expert knowledge of all AWS tools (Amazon DynamoDB, EC2, SQS, S3, CF), Google Web Toolkit, Tomcat, and Spring Beans
- Proficient knowledge of low-level programming on various microprocessor architectures using JTAG debugging tools
- Excellent understanding of embedded systems, notably synchronous/asynchronous high-speed serial communication protocols such as I²C, RS232, and SPI

EDUCATION AND SKILLS

University of Waterloo, Waterloo, ON - April 2016

Honours Bachelor of Applied Sciences, Electrical Engineering

Sep 2011 - April 2016

Relevant Courses: Data Structures & Algorithms Distributed Computing Embedded Systems Algorithm Design & Analysis
Radio & Wireless Systems (RF) Artificial Intelligence Machine Learning Analog & Digital Communication

Languages

C, C++, C#, VHDL, Java, Python, ASP.NET, SQL, MATLAB, XML, Assembly, Javascript, HTML5, CSS3, GWT, AngularJS, Node.js, JSON, React, Redux, Reselect

Software

Visual Studio, Eclipse, VisualDSP++, Altium, NI Circuit Design Suite, MultiSim, Verilog, Xilinx Design Suite, Android SDK, IntelliJ, Selenium, JIRA, Jenkins, VMware, Tomcat

Hardware

ARM, Arduino, FPGA (Altera Cyclone Series, ZedBoard)

Additional Miscellaneous

Client-Server (DNS, HTTP, REST, LDAP), RPCs (Thrift), Distributed File Systems (NFS, HDFS), Analytics Platforms (Hadoop, Spark), Computations (PageRank), NoSQL Storage (Cassandra, HBase), Distributed Databases (Hive, Impala), Computer Vision (OpenCV, Tesseract-OCR)

WORK EXPERIENCES

IMDb, Software Development Engineer (Full-time) Seattle, Washington

Nov 2016 - Present

- Developed music player react component with Java Spring backend for up to 4 million movie soundtracks available globally at IMDb.
- Maintained & managed all services/server fleets that vend nearly 5 million units of movie/television data to IMDb per day.
- Designed & implemented persistent user voting on all images and videos on IMDb's iOS, Android and web platforms.
- Streamlined a 5 person team's SDLC practices, including design, coding architecture, testing, code reviews, deployments.



Amazon Web Services, Software Development Engineer (Co-op) Palo Alto, California

Aug 2015 - Dec 2015

- Created a client-side solution to maintain identical copies of DynamoDB tables across different AWS data center regions, in real time.
- Used AngularJS & GWT alongside AWS in order to eventually consist data between tables across regions in single digit ms latency.
- Designed specialized Spring Beans to regionalize AWS clients and asynchronous RPC model proxies from client side to server.
- Led this MVC architecture project to production release using Tomcat and is available worldwide at aws.amazon.com



Smart Technologies, Firmware Engineer (Co-op) Calgary, Alberta

May 2014 - Apr 2015

- Developed real-time pattern detection algorithm using OpenCV to detect cosmetic and performance defects on retro reflective tape.
- Designed prototype for Linux embedded system on ARM based FPGA SoC to work with a Bluetooth and Wi-Fi module.
- Used Xilinx Design Suite to map pins and generate bitstream to physically connect hardware to the FPGA's fabric.
- Modifications to U-boot, First Stage Bootloader, Linux Kernel, and Device Tree led to the completion of this prototype.
- Reverse Engineered an outsourced firmware upgrade of SMART boards using I²C Analyzer and oscilloscope.
- Developed I²C driver to send/receive firmware upgrade of RAW bin file in 256 byte chunks with checkbit.



ON Semiconductor, Firmware Developer (Co-op) Waterloo, Ontario

Sep 2013 - Dec 2013

- Worked on live signal debugging for RS232 and I²C transmission to high speed hearing aid programmers.
- Designed I²C & RS232 drivers to allow support of three more high speed hearing aid programmers, resulting in over 1000 employees and suppliers being able to develop DSP tools on hearing aid devices more conveniently.



BlackBerry, Software Engineer (Co-op) Waterloo, Ontario

Jan 2013 - Apr 2013

- Proposed and implemented automated monthly project reports now used by over 100 managers each month.
- Developed aforementioned reports via asynchronous document with jQuery using AJAX in an ASP.NET environment.



RELEVANT PROJECTS



FollowCam Drone

- Built human tracking UAV using image processing, control theory, I²C (Testing Video, Github)



GitHub Side Projects

- Dota 2 Twitch Image Processing, Face and Eye Detection, Dota 2 Drafting Simulator (Android)



HackTheNorth(hackathon)

- Participated in hackthenorth.com. Design & code of intelligent preference magazine