Amir Ghassemi Nasr
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Software engineer interested in software architecture and various theoretical and practical computing domains.

Work Experience

I enjoy research, value scientific methods, and tend to come up with novel ideas to overcome technical hurdles. The business behind software matters to me. I often study rivals and aim at understanding the big picture. That sometimes leads to wiser decisions without going through technical challenges.

Sotoon (Aka. Cafebazaar Cloud) *December 2018 - June 2021*

Sotoon[1] is a company of Hezardastan software holding and provides infrastructure to the holding's other products: *Cafebazaar*, an Android app market with more than forty million users; *Divar*, a C2C sales service and one of the most visited websites in Iran, and Balad, the top navigation app in the country. My daily working stack mostly consisted of Go, Kubernetes, QEMU, and Open vSwitch.

- As the system owner of the VM manager and a handful of other projects for two years, I was behind the design and implementation of a number of our Compute Engine's components, including VM provisioner, runtime manager of VM, public API and guest agent, billing system, and manifold integrations.

- Since many customers of Compute Engine end up setting up Kubernetes on their VMs, I was involved to deliver Kubernetes as a service product too. I became familiar with many Kubernetes specifications and implemented CSI, CCM, and CNI for the KaaS product to integrate well with the CE.

Scann *March 2018 - September 2018*

Scann was a mobile payment solution in Iran and my role was Back-End developer and DevOps engineer. We made a Qr-Code-based payment solution. I was in charge of financial systems integration, designing and running our microservices in a private cloud environment, and supervising the development team.

Tapsell *November 2017 – March 2018*

Tapsell[2] is a prominent advertising firm in Iran, mostly focused on mobile platforms. I was a back-end developer and data engineer of bidding core. My working stack was Kotlin, Spring Cloud, Cassandra, Elasticsearch, Kibana, Kafka, and Spark.

- I co-implemented a fast and scalable real-time bidding method that assisted by collected data, would make better offerings. I made offline processing jobs to collect and compute useful metrics like odds of conversion for specific bidding requests and advertisement parameters using user activities events. I made more jobs to enhance these already valuable data by ML methods to enhance the accuracy of predictions. Using these processed data and fast key-value DB we could reduce the response time of bidding requests from 400ms to 90ms in the 90th percentile.

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[1] https://sotoon.ir [2] https://tapsell.ir/en

Pichak (Aka. Betternet) *April 2015 – November 2017*

I developed both network-based pieces of software and solutions to speed up DevOps operations.

- Co-designed and developed server-side software of a VPN that reduced average connect time from five seconds (OpenVPN) to half a second and handled 18K concurrent users, which had been capped to 2.7K (IPSec) previously. Thanks to Erlang's features, we kept the service with daily petabytes of transfer, up for one year on more than one hundred servers. The software is known to the public as Hexatech VPN by Betternet[3].

- Designed and implemented a deployment system on top of Ansible. We used this to apply configurations on 80+ bare-metal servers. We had faced scalability problems in provisioning and configuring that number of servers correctly with our previous deployment system (Juju).

- Built Slack bot for DNS management that reduced the time DevOps would spend on configuring DNS manually by a factor of 10.

- Innovated solutions to deal with business threats. Including a DDOS protector for EC2 Instances and torrent traffic blocker which learned what to block from infringement emails and its crawlers

- Designed and implemented approaches to dissect Netflix traffic which made our VPN one of the few VPN services that could bypass Netflix's Geo restriction at the time.

- Did some experiments on Deep Learning, especially in the field of voice recognition.

Naji Research and Development *April 2014 – February 2015*

I developed several ADF-based forms for an automation software. I worked with some Web client libraries, did some servlet programming, and developed new Web services in Java EE 8.

- I managed to deliver a multi-window and desktop-like look for a restrictive Web application, which allowed the company not to migrate back to the old Oracle Forms approach or change the Web framework. It helped to keep piles of existing code and let developers develop their Web forms as they used to do.

Personal Software Projects

CONTROL-C Judgment System for grading programming courses exercises[45] PHP , JavaScript , Bash , C

ASHTTP Yet another HTTP tunnel for Twisted[6] Python

TSUNG-DNS Tsung plug-in for stress loading DNS servers[7] Erlang

DEEPSPEECH-PG Dual branch learning of Baidu's DeepSpeech using raw text and auxiliary phoneme output for better training[8] Python

I sometimes publish pieces of software on my codes page[9] or Github[10]. A timeline of my activities can be found on my Stack Overflow Developer Story page [11].

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[3] https://betternet.co   [4] Source Code: https://github.com/reith/control-c
[5] A read-only clone of my university instance: http://cc.www.reith.ir
[6] https://github.com/reith/ashttp   [7] https://github.com/reith/tsung_dns
[8] https://github.com/reith/deepspeech-playground   [9] https://www.reith.ir/code
[10] https://github.com/reith   [11] https://stackoverflow.com/story/hack

Education

I earned a Bachelor of Software Engineering from the Shahrood University of Technology in 2013.

Domains of Experience

LANGUAGES Having programming experience in Go, Kotlin, Erlang, JavaScript, C++, Java, Python, Perl, Bash, PHP, and C in reverse chronological order of the first experiment. Some measurements are reachable from Smarterer test result[12].

CLOUD Familiar with multiple Amazon Web Services including Route53 and S3. Made automation tools over them. Having working experience with Kubernetes and extending it e.g. Development of CNI, Device Plugins, IAM service, Cloud Controller Manager, Container Storage Interface, Custom Aggregated Servers, and Custom Resource Controllers.

DATABASE Having working experience with MySQL, PostgreSQL, Oracle, Redis, Elasticsearch, and Apache Cassandra databases. Having a basic knowledge of programming in PL/SQL.

NETWORK PROGRAMMING Having a good experience of network programming

WEB FRONT-END Have working experience with JavaScript libraries like jQuery, Underscore, lodash, RequireJS, and Backbone. Familiar with Zurb Foundation SASS framework * till 2015

DESKTOP APPLICATIONS Familiar with C++ Qt[3,4] framework and PyQt till 2014

PHP DEVELOPMENT* Familiar with PHP framework Agavi till 2013

PYTHON DEVELOPMENT Have working experience with Python Flask/Werkzeug Web framework and SQLAlchemy ORM. Familiar with Ansible codebase. Familiar with Twisted framework.

JAVA DEVELOPMENT Familiar with Java EE components, EJB3, CDI, JAX-RS, and JPA. Experienced in high-level Oracle ADF framework. till 2015 Have working experience with Spring Cloud framework. till 2018

DATA ENGINEERING Have working experience with Apache Spark, Druid, and Kafka.

MACHINE-LEARNING Familiar with Neural Networks and having working experience with modern AI methods. Familiar with Keras deep learning framework. till 2019 Familiar with SparkML.

BOTS Made bots for Slack and Telegram, familiar with their Bot API

LINUX SA GNU/Linux user since 2005: Debian Etch (2006-2008), Sabayon (2008), Gentoo (since 2009). Familiar with LXC, Docker and Mesos containers and DC/OS, Rancher and Kubernetes container orchestration systems. Familiar with configuring and managing many GNU/Linux-based services. Familiar with performance analysis of Linux systems. Familiar with packaging for Debian based systems.

SVC Familiar with git and SVN source version control systems

CI/CD Having working experience with CI/CD tools like GitLab and Jenkins

- Familiar with making Firefox extensions till 2015 and Experienced in writing Greasemonkey scripts

- Having a basic knowledge of Android programming

Notes

*. It's been a long time since the last time I worked with these things, so my knowledge is not that good anymore

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12 http://smarterer.com/hack