SERG BUSLOVSKY

SOFTWARE ENGINEER

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PROFILE

Experienced engineering leader with a broad spectrum of expertise: server, mobile, embedded & computer vision.
Proven track record of building and deploying systems to production, solving hard problems in challenging conditions.
Passionate about applying the latest advances in technology to real-world problems.

EDUCATION

BACHELOR IN CS
Kyiv National Shevchenko University, Ukraine

SKILLS

// Languages
Java
C/C++
Python
PHP
Shell scripting

// Mobile
Android SDK
Android NDK, JNI
Gradle

// Java & backend
Netty
Apache Avro
JUnit

// Persistence
MySQL
SQLite
Redis
Memcache

// CV & ML
OpenCV
Caffe2
TensorFlow

PROFESSIONAL EXPERIENCE

Clover | https://www.clover.com
2013 - 2018 | Principal Engineer
2018 - Present | Senior Manager

Joined the company at an early stage (under 20 employees) and contributed to many different areas of the software stack.
Key achievements (in chronological order):

- Designed and implemented a Push Notification Server to deliver notifications from backend servers to Android- and web-based clients *(Netty, Redis, SSE, Websockets)*.
- Built backend infrastructure for Clover App Market system that manages the delivery of applications (built internally and by 3rd party developers) to a fleet of Android devices *(REST, Bouncycastle, database design)*.
- Developed Barcode Recognition System (UPC,QR) for Clover custom hardware - detector was implemented using Android NDK, running barcode localization and recognition pipeline in native, wrapped with a JNI bridge to Java and AIDL interface for clients (*OpenCV*, *BLaDE*, *ZXing*).
- Implemented integration layers with multiple payment acquiring systems (*SOAP*, *XML*, *Apache CXF*, *JSON*).
- Lead the design and implementation of Clover Secure Payments application - essential functionality for Clover Terminals allowing acceptance of card-present payments (chip, contactless, magnetic stripe).
    - The system consists of an Android application that implements UX for the customer and an additional secure application written in C and executed on an additional microcontroller(ARM-based) running FreeRTOS.
    - Secure application interfaces with ICC, NFC, and MSR drivers, executes EMV and Contactless L2 kernels and performs encryption (RSA, 3DES).
- Played a pivotal role in achieving EMV, Contactless (Visa, MasterCard, Amex, Discover, Interac, JCB) and PCI PTS certifications for Clover terminals that allowed launching Clover Mobile, Mini, Flex and Station products.
- Demonstrated ability to jump into unknown domains, collaborate with cross-functional teams to deliver on mission-critical projects.
- Contributed to international launches of Clover in UK, Ireland, Germany, Austria, Canada & Argentina.
- Lead implementation of a project to enhance the availability of the payments processing cloud system by extracting the critical payments processing components from a monolithic server into a dedicated scalable microservice.
- Built a team of engineers working on core payments infrastructure in Clover HQ, trained multiple regional and international teams.

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RecycleBank | 2012 – 2013 | https://www.recyclebank.com
Software Engineer, Manager

- Lead software engineering efforts to maintain and enhance company's technical solution based on heterogeneous stack (*LAMP, Ruby/Rails, Java*).
- Implemented from scratch internal testing toolset built using Symfony Framework.
- Provided expert guidance on extending and optimising the Magento platform.
- Provided architectural and technical guidance to product development.

OnTap | 2010 – 2011 | https://www.ontapgroup.com
Software Engineer

- Hands-on development for the agency's numerous client ecommerce solutions based on Magento Platform.
- Implemented multiple Magento Extensions that were later reused in many new client installations.

SmartyMedia | 2006 – 2009 | http://smartymedia.biz
Software Developer

INTERESTS

Aviation
Travelling

PERSONAL PROJECTS

Vincentiv | 2021 | https://www.vincentiv.net/
Built a Proof-of-Concept cryptocurrency network that rewards users for transacting.
Key aspects of the project:

- It is a fork of Peercoin, hence inheriting the Proof-of-Stake consensus mechanism.
- Rewards generation has been added to the Bitcoin Core (node) block acceptance protocol, BFGMiner was adjusted to generate the rewards.
- Block explorer was developed based on Bitcore & Insight libraries.

Reddit discussion about the project generated substantial interest.

Ticket To Ride Score Calculator app | 2018 | https://serg.buslovsky.com/ttrsc/
https://play.google.com/store/apps/details?id=com.buslovsky.ttrsc

Built an Android application from an idea all the way to production deployment (iOS version in the works as well).
The app is applying Machine Learning and Computer Vision technologies to solve a problem with a popular board game Ticket To Ride. Score computation at the end of the game is very tedious - the app allows users to take a picture of the game board with their phone's camera and computes the score automatically by recognizing board game elements in the picture using a Convolutional Neural Network.
The app was accepted extremely well by the board game community and was downloaded by over a thousand people in the first 2 days following the launch announcement.
It currently holds an average 4.5 rating in Google Play Store with over 10K downloads.
Key aspects of the implementation:

- Custom data management tool built for labelling contents of the images and generating an LMDB database with samples for training / testing (*Python, OpenCV*).
- A flavour of DenseNet was trained using Caffe2 framework; full-dataset training executed on an AWS EC2 instance.
- Android application built with native C++ components that link Caffe2 and OpenCV libraries (*Android NDK*).
- Localization of the game board in the input image built upon AKAZE feature matching; parts of the input frames are sent to localizers to perform feature mapping efficiently on camera preview signal (~100ms per frame).