Jane Ivanova

Lead Integration Engineer

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PROFILE SUMMARY

Integration engineer with good knowledge of modern technologies and broad programming experience. Has drive to research and develop complex systems. Passionate about robotics and AI. Find comfortable working independently as well as working in group, feel confident in leading others and take roles as integration analyst / architect / engineer.

EDUCATION

MS in Electrical and Computer Engineering , GaTech — **enrolled**

BS in Applied Physics and Applied Mathematics, MIPT — **2013**

ADDITIONAL QUALIFICATION

- **Cryptography** (Stanford University – online course)
- **Java SE 7 Programmer: Oracle Certified Professional** (Certificate)
- **Java SE 7 Programmer: Oracle Certified Associate** (Certificate)
- **Algorithms, Theory, and Machines** (Princeton University – online course)
- **Algorithms, Part I, II** (Princeton University – online courses)
- **Analysis of Algorithms** (Princeton University – online course)
- **Fundamentals of Digital Image and Video Processing** (NW. Un. - on.c.)
- **Practical Reinforcement Learning** (NRU Higher School of Econ. – on.c.)

SKILLS

Leadership	* * * *
Java	* * *
Apex	* * *
SQL/T-SQL	* * *
SAP ABAP	* * *
JavaScript	* *
C/C++	*
Python	*
Anypoint Mulesoft	* * * *
Informatica Cloud	* * * *
SAP XI/PI/PO	* * * *
SAP HCI	* *
Zapier	* * *
Salesforce	* * * *
SAP CRM/ERP	* * * *
Node.js	* *
Arduino	* *
Raspberry Pi	* *
Microcontrollers	*

CHARACTER

- Soccer player, captain and a coach (with awards)
- Dare-to-try person

PERSONAL PROJECT

AI Enabled Multi-Agent System. Attempt to approach areas of applied AI and distributed systems. Objectives:

- Map building using a network of distributed mobile sources;
- Framework for a system of cooperative home assistants;
- Distributed anytime algorithm for training objects classifier;

Environment: Java, C++, Python, OpenCV, Gradle, Raspberry Pi 3 and 4, Ubuntu Server, Google Colab.

RECENT ACADEMIC PROJECTS (at ASU)

Distributed and Multiproc. OS – Distributed Bank Application — Mar' 2021 – May' 2021

I've implemented a distributed application to support requests on a bank account: deposit, withdrawal, balance request; with data consistency (part 1) and client-centric consistency models (part 2), so that several client-apps could have access to the same account from different access points. The server application had several nodes (branches) distributed over network, and clients sent requests to their corresponding branch. I developed propagation flows and relevant locking mechanisms within branches to achieve consistency in sequential operations like withdrawal, deposit and balance request.

Grade received: A
Environment: Python, gPRC, purely Linux command line and gedit.

Statistical Machine Learning — Aug' 2020 – Oct' 2020

Gaussian Naive Bayes Classifier

I've implemented Gaussian Naive Bayes classifier to classify handwritten digits from MNIST database using average of all image pixels brightness values as the first feature and a standard deviation of all image pixel brightness values as a second feature.. Prediction accuracy for '0' – 92%.

K-Means Clustering

I've implemented k-mean clustering algorithm on the set of 2500 dots allocated widely in 2 variations, and using euclidean distance in comparison. The first variation selects initial centroids randomly from the given dots, and the second variation selects one centroid randomly and others the most distant to the selected before. On a range of k (number of centroids) from 2 to 10, the second strategy was observed to give less loss.

Classification Using Neural Networks and Deep Learning

I've implemented and trained Convolutional Neural Network to classify handwritten digits from MNIST database. Initial structure with convolutional layer, maxpooling and 2fully connected layers gave accuracy 82% for '0'. After adding 3 more convolutional layers and maxpooling, changing normalization and activation functions the accuracy reached 98%. Further research has shown that data augmentation would increase accuracy to 99-100%.

Grade received: A
Environment: Python, Google CoLab.

Mobile Computing - Visual American Sign Lang. Classifier — Jan' 2020 – Mar' 2020

In this project we've implemented a combinatorial model Edge+Fog enabling an application for ASL classification. Through its UI it allowed user to learn ASL signs, captured user's hands gestures via smartphone's camera and learned to classify ASL signs shown using ML. The model shown the impact of certain features of gestures on the signs prediction accuracy. Adding these features to the model allowed to increase the accuracy of signs prediction from 16% to 82%. Android smartphone took role of an edge device, and the Flask service was used as a fog.

Grade received: A
Environment: TensorFlow's PoseNet, Java, Python, Flask, Android Studio, Pixel, Google CoLab.

Artificial Intelligence - Neural Networks Application — Oct' 2019 – Dec' 2019

Neural Network for Collision Prediction

The project addressed a very common task in mobile robotic devices to predict collisions in the surrounding environment. The model environment consisted of limited space with obstacles and walls, and the agent possessed 5 sensors to read distances to the nearest obstacles in different directions. As a goal of the project the neural network was trained to predict collisions with the obstacles based on the sensors readings with accuracy more than 97%.

Tools for Sequential Decision-Making

The project supplemented the prediction mechanisms of mobile robotic device with the decision-making functionality and served a demonstration of approaches to path-finding task. The simulated environment consisted of the agent (Pacman) and a maze with walls and food. Based on propositional fragments of the maze the planning system executed greedy best-first search algorithm to find the shortest path to the target in the maze completing assigned tasks.

Bayesian Networks

The project modeled and implemented solutions for several situations under uncertainty which in real world are often hard to figure out for human experts. One of the significant solutions delivered probabilistic diagnosis for a disease symptom and proposed possibilities for illness.

Grade received : A
Environment: Python, PDDL (Planning Domain Definition Lang.), PyCharm, FastDownward Planner.

Cryptography Application — Aug' 2019 – Oct' 2019

Block Encryption and Attack with Cryptoanalysis Method

The project implemented encryption algorithm under specific requirements to encrypt a multimedia file with 32- and 64-bit key. As a proof of a lack of security of 32-bit key the project implemented brute-forcing attack on the 32-bit encryption key.

For the file encrypted with the 64-bit key block encryption provided the project implemented an algorithm analysis and developed an attack on the cypher text using cryptoanalysis of the content.

Rainbow Table Attack

The project illustrated the common in the real world situation of passwords database leak and why despite hashing this information can still be used by adversaries. In the project the rainbow table attack has been implemented on 32- and 64-bit hashes provided for passwords of 4-symbols.

Encryption with MAC

The project implemented a hash-based message authentication algorithm under specific requirements to encrypt and decrypt 1024-byte files.

Grade received: A
Environment: C, Clion.

PROFESSIONAL EXPERIENCE

7+ years: **Software Development Life Cycle (SDLC),** various programming languages and systems;

5+ years: **Integration engineering**: web services development and configuration, cloud/on-demand/hybrid integration platforms, SOA, microservices, ETL and APIs-led architectures;

3 years: **Team leading,** the team up to 5 people.

Full-time contractor, Senior Mulesoft Developer — May' 2020 – Sept' 2021
Mentor Graphics (Siemens Business), OR, USA

Build the new integration interfaces and extend a framework built earlier, for different other business entities and new operations. Added functionality for different statuses processing, error management, various data validations, and a tool for massive loads. Develop integration flows for distributed defect management systems.

Environment: DataWeave, Java, T-SQL, MuleSoft, SAP, Salesforce, Oracle Database

Full-time contractor, Senior Mulesoft Developer — Jul' 2019 – Oct' 2019
Mentor Graphics (Siemens Business), OR, USA

Helped in developing a new integration landscape for recently merged companies' systems networks. Designed a set of new integration flows for the new merged landscape. For the complex dependencies

for certain business entities developed the process orchestration framework with passive waiting of steps execution in various systems. Provided onsite support during the intensive phase of development.

Environment: DataWeave, Java, T-SQL, MuleSoft, SAP, Salesforce, Oracle Database.

Part-time contractor, Lead Integration Engineer
Apr' 2019 – Nov' 2019

FundCount, MA, USA

Researched options for the product development, developed several proof-of-concepts (PoC), and a prototype of a new integration feature of FundCount software. Developed a prototype of a text recognition (OCR) on the scanned reports images and data extraction into Excel form. Provided detailed analysis of existing technologies, possible approaches and integration patterns. Established a workflow for sustainable future development by the developers to take over the support of this feature.

Environment: Java, JavaScript, Zapier, Tesseract-OCR, Google Drive API, Salesforce, MySQL Database.

Lead Salesforce Integration Specialist / Team Lead
Aug' 2017 – Feb' 2019

CT Consulting (Customertimes Inc.), Moscow, Russia

Lead multiple international integration projects in pharmaceuticals, and healthcare industries. Acted as an architect and a lead developer in the clinical trials system implementation for the phases I-III.

SAP XI/PI/PO Integration Consultant
Jul' 2015 – Aug' 2017

Masterdata, Moscow, Russia

Consulted company's clients, designed and implemented multiple integration projects in telecommunications, pharmaceuticals, cement manufacturing, brewery and e-commerce industries in roles of SAP PI/PO Consultant/Developer / System Analyst / Informatica Cloud Developer. Conducted multiple workshops with the client's teams in France, Spain, and Mexico.

SAP ABAP Developer
Aug' 2013 – Jul' 2015

Masterdata, Moscow, Russia

Implemented multiple projects in telecommunications industry, developed various sales order calculations rules and automatic processing and billing.