Robert **Balayan**

Japan, Ōsaka-fu, Ōsaka-shi, Jotoō-ku Furuichi 1-21-22 #102
+81 70 4467 6892 | robert@balayanr.com | balayanr

Freelance AI and Software Engineer in Osaka, Japan. Looking to work with Data and Machine Learning. Interested in Database Architecture and Distributed Systems.

summary

- Experienced in Machine Learning, Natural Language Processing and Computational Linguistics, General AI Theory, and Knowledge Representation.
- Programming Languages: Python, SQL, PL/pgSQL, C, Java, Matlab, R, LaTeX.
- Natural Languages: English, Russian, Armenian (Conversational), Japanese (Basic).
- Frameworks and tools: NumPy, TensorFlow, keras, AWS, Luigi, Selenium, BeautifulSoup, Docker, Hadoop, NLTK, Django REST.
- Solid mathematical and statistical background.

work experience

April 2018 - February 2020

LEAD AI ENGINEER
Kuon Technologies, Japan (クオンテクノロジーズ株式会社)
Lead engineer of the core of the company's main product - Beep Shift, a scheduling AI that assigns part-time employees to the positions required by different businesses. The product is in its final stages of development with further expansion planned to include sales and requirement prediction.
Handled everything related to the AI side of the project: from database architecture and API design to AI development and deployment.

November 2019 - Now

FREELANCE SOFTWARE ENGINEER
Freelance, Osaka, Japan
I started taking occasional projects that help me learn new tools while fulfilling them. Through them I got proficient at Data Mining and Web scraping, further improved my understanding of Databases, ETL pipelines. Projects themselves are listed further below

education

2014-2017

HONOURS BACHELOR OF SCIENCE
University of Toronto, Canada
Computer Science Specialist with Focus in Artificial Intelligence
Fields studied:

- Machine Learning, Convolutional and Recurrent Neural Networks
- Computational Linguistics and Formal languages, Natural Language Processing, Phonetics
- General AI theory, Knowledge Representation and Reasoning
- Graph Theory and Algorithm Design
- Statistics, Linear Algebra and Multivariable Calculus

Relevant Projects:

- CSC412 Solo Research Project: Exploiting Structure For Classification Of Handwritten Japanese Characters
- CSC384 Group Research Project: CSP Algorithm Analysis
- CSC343 Solo Project: SQL-based course recommendation engine

2017-

CERTIFICATIONS
Coursera
Hadoop Platform and Application Framework, License D6W6PEBPALWW

skills and experiences

- 6+ years of experience **programming in Python**: from manipulating SQL databases to Neural Networks and Deep Learning using Numpy, TensorFlow and Keras to Chart parsing and word sense disambiguation using NLTK to Data Mining with Selenium and BeautifulSoup. This is my language of choice for both personal projects and research.
- Additional experiences with **Machine Learning in Matlab** (statistical machine translation, acoustic perception, Hidden Markov Models, Mixture of Gaussians); limited experience with **low-level programming in C/C++** (Kernel extensions, file-system manipulation, computer graphics in OpenGL); limited experience with **Object-Oriented Programming in Java** (Android Application back-end development following the MVC paradigm, JDBM for PostgreSQL);
- Experience designing both discriminative and generative models for image classification, voice recognition and language modeling. Deep understanding of the Machine Learning theory and algorithms, as well as of limitations imposed by hardware.
- Experience with machine translation. Implemented IBM Model-1 and trained it on Hansard corpus for English-French translation.
- Interest in Natural Language Processing and Computational linguistics. Familiarity with basics of Information Retrieval, Speech Recognition and Synthesis, Word sense disambiguation, statistical chart parsing disambiguation, and Question Answering.

projects

February 2020 - Now	Designing and implementing an ETL pipeline for a website that unifies listings from government tender websites. The pipeline is designed around Luigi, with every website getting a crawler task that would navigate web pages with Selenium, find all new listings and parse them (either with BeautifulSoup, Tabula, or PDFMiner) and load everything into a database. Deployed on AWS EC2, where the tasks are scheduled with a cron; Database is in PostgreSQL and deployed on AWS. Project is currently in progress, as more websites are added.
January 2020	Database development for a system used to manage staff, tasks and billing. Written in PostgreSQL, deployed on AWS, as the rest of the application was using AWS Elastic Beanstalk.
November 2019	Crawling of Hello Work's Job Listings. A customer who wanted a page that only contained listings relevant to their job. Everything was deployed on AWS Lambda, with functions handling both server-side rendering for pages and crawling. Used BeautifulSoup for page parsing and Selenium to help with navigation, database in PostgreSQL and deployed on AWS.
CSC412	Solo Research Project: Exploiting Structure For Classification Of Handwritten Japanese Characters. • Developed a parser for the Electrotechnical Laboratory datasets, which come as incredibly compressed. • Tested 4 different architectures with 2 different goals: direct kanji classification and multilabel classification of radicals that make up the kanji. • Used AWS EC2 p2.xlarge and c4.8xlarge instances to train the models in parallel. • Compiled the report in LaTeX, generally following standards used for publications. • Published all source code and the report on Github
CSC384	Group Research Project: Constraint Satisfaction Problem Algorithm Analysis • Was the *de facto* team leader • Provided the team with a selection of algorithms outside of the course's scope that would be interesting to analyze. Final selection was iterative improvement, path consistency, and a tree-specific algorithms. • Regularly checked in on the other member's progress, helped if they had any problems. • Used SVN for subversion controll. • Compiled the report in LaTeX.
CSC343	Solo Project: SQL-based course recommendation engine. (Github)
CSC321	Solo Project: Face classification using AlexNet, implemented in TensorFlow.

languages

English	Fluent
Russian	Fluent
Armenian	Conversational
Japanese	Basic

interests and hobbies

Artificial Intelligence: I have always been interested with AI and inspired by its portrayal in science fiction. It is my dream to work on implementing a general AI. One of the most interesting roadblocks to me is the way humans interact with AI: in science fiction it is almost always seamless, like talking to another person. Personally I have always had interest in Natural Languages, so this is one of the fields I would like to study in depth.

Sports: I am an avid cyclist. I train with the University of Toronto Road Racing team and participate in various local cycling events. During my recent trip to Japan, I climbed Mount Fuji on bike and toured around the Kanto region. I also enjoy diving and have various advanced diving certifications. Recently developed interest in motorsports, regularly practice racing in simulations.

Traveling: I enjoy traveling whenever I have the opportunity. I have visited many countries, including Japan, Spain, France, Italy, England, Germany, Egypt, Turkey, Georgia and Armenia. Lately, I have been traveling with my road bike and touring in the places I visit.

GunPla: One of my favourite hobbies is building plastic model kits. Over time I have built dozens of kits and as a result have a collection of Mobile Suit Gundam and Warhammer 40K figurines.

Magic the Gathering: I enjoy the card game as a challenge for building the best deck possible out of limited resources provided. Occasionally participate in tournaments.