Sergei Issaev

Machine Learning Engineer · Data Scientist

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Skills

Languages Python, R, MATLAB, SQL, NoSQL, HTML, CSS, Javascript, LaTeX, Solidity, C++, Java
Libraries PyTorch, TensorFlow, Keras, Pandas, Scikit-learn, LightGBM, XGBoost, Numpy, Matplotlib, Streamlit, SciPy, NodeJS, React
Tools Docker, Git, Jira, Flask, Hadoop, JupyterHub, NLP, GAN, CNN, Data Visualization, Azure, AWS, Databases, Linux, Shell Scripts

Work Experience

Vooban — *Quebec, Canada*

AI Scientist — *Jul. 2021 - present*

- Develop custom end-to-end AI solutions for clients across a variety of industries.
- Involved in all stages of software development, from strategic planning and dataset collection to AI training and production deployment.
- Frequently work with **PyTorch**, **Tensorflow**, **OpenCV** and other machine learning libraries, primarily on time-series and computer vision datasets. For example, I have trained and tuned **CNN** models (leveraging **transfer learning** on **GPU**) for custom **instance segmentation** tasks.
- Design cloud solutions to connect to client databases (**MySQL**) and deploy containerized project code (**Docker**) in production on **AWS** or **Azure**.
- For example, I developed a demand forecasting solution using **Prophet** and **XGBoost** to create 12-month sales forecasts for 650 products. AI forecasts had a MAE of ±12% (compared to MAE of ±52% from sales staff), and were displayed using a **Streamlit** dashboard running on **Azure**.

PortLink — *Vancouver, Canada*

Machine Learning Engineer — *Feb. 2020 - Feb. 2021*

- Leveraged Agile development to process 1,000,000+ datapoints to build and deploy (**Docker + Azure**) an ETA prediction tool.
- Cleaned & visualized data using **Pandas**, **Matplotlib** and **Seaborn**, built & optimized regression model using **Scikit-Learn**, and **LightGBM**.
- Deployed model was capable of predicting ferry arrival times with a mean average error of 10 seconds and had an explained variance of 99.94%.
- The model's predictions helped clients better coordinate dock staff to ferry arrivals, making port operations more efficient and less costly.

Research

Applications of cGANs to histopathology images — *Vancouver, Canada*

Graduate Researcher — *Sep. 2019 - Jul. 2021*

- Built an end-to-end computer vision pipeline leveraging **OpenCV** for preprocessing medical images that are input to a custom conditional **GAN**, built and optimized using **Keras** and **Numpy**, for the purpose of automating the production of tissue segmentations to quantify fibrosis.
- SSIM similarity of 0.92 obtained comparing ground truth segmentations to generated segmentations; 99.5% Pearson correlation between quantifications of generated and ground truth images.
- AI model is fully automated, accurate, objective, and 400% faster than manual segmentations. Research paper is currently being written.

Extracurricular Projects

Short Term Ethereum Algorithmic Trading API — *Feb. 2022 - Aug. 2022*

- Built and published an API (**FastAPI**) capable of scraping and preprocessing live data, then obtaining a prediction from a model (**autosklearn**).

Deep-Learning-Based Automatic CAPTCHA Solver — *Aug. 2020 - Sep. 2020*

- Developed end-to-end pipeline for solving 10-character CAPTCHA images. I used **OpenCV** for image processing and image segmentation, as well as transfer learning using **ResNet CNN** architecture to classify text.
- Obtained a 99.6% validation accuracy, and published my findings with Towards AI (read over 1500 times).

UFC Outcome Prediction Model — *Sep. 2019 - Sep. 2020*

- Created an ensemble model to predict the outcomes of UFC fights. Final test set accuracy was 74% for picking the winner. Models included **neural network (TensorFlow)**, **KNN (Scikit-Learn**), and **LightGBM**. Presented poster at BC AI Showcase to over 500 attendees.

Education

University of British Columbia — *Vancouver, Canada*

MASc. in Biomedical Engineering — *Sep. 2019 - Jul. 2021*

- Completed coursework in Machine Learning, Deep Learning , Linear Algebra, & Computer Vision.

York University — *Toronto, Canada*

BSc. in Computational Biology — *Sep. 2015 - Apr. 2019*

- Awarded President's Honor Roll for obtaining a 4.0 GPA.