Karolis Jankauskas

A Biochemical Engineer turned Data Scientist. Passionate about tech and AI.

Key Skills
C++, Python, Cython, R, Julia, Flask, Django, Docker, Celery, RabbitMQ, PostgreSQL
Machine Learning, Evolutionary Programming, and Mathematical Programming
Data Mining, Statistical Analysis, and Hypothesis Testing

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EXPERIENCE

Machine Learning Engineer
Aiden.ai
London, UK, 2018 February – Present

Aiden is a Natural Language Processing (NLP) powered virtual assistant who helps marketers make better decisions.

- Using Docker, Python, R, and Flask, developed and deployed a REST API which is now utilised by the virtual assistant to detect anomalies and breakouts in advertising time-series data.
- Using Python and Keras, developing a multi-task neural network regression model with entity embeddings of categorical variables to answer questions such as "W*hat is the expected performance, e.g. number of link clicks and installs, of my account this week if I spend on average X amount on ads targeting Y audience in Z location?"*.

Data Scientist
Picasso Labs
London, UK, 2017 Feb – 2018 February

Picasso Labs was selected as one of Unilever's most innovative marketing companies of 2016.

- Using Python, Keras, and OpenCV, developed a content-based image recommendation system. By combining Convolutional Neural Network (CNN)-based transfer learning with the additional features such as HSV color histograms and entity embeddings of date, time, and image tags, the system was capable of predicting whether the image would get more likes than the average of the account with 70-80% accuracy.
- Using Python, created statistical models to find out which image tags perform better, e.g. get more likes, on average.
- Using Python, Keras, OpenCV, and Dlib, web-scraped and analysed over 5000 images from US online media (see www.newsweek.com/liberal-media-not-biased-trump-thinks-703291 and www.picassolabs.com/trump).

Teaching Assistant
UCL Biochemical Engineering
London, UK, 2016 February – 2018 February

Supervised research projects and taught MSc and MEng students Discrete-Event Simulation, Mathematical Programming (LP and MILP), Genetic Algorithms, and Multi-Objective Optimisation.

Consultant
Sphere Fluidics Ltd
Cambridge, UK, 2014 June – 2014 August

Built mathematical models to characterize different microfluidic cell sorter designs for a novel single-cell screening and analysis system.

Research Associate
UCL Advanced Centre for Biochemical Engineering
London, UK, 2013 June – 2013 August

Analysed mass spectrometry data and improved the fermentation conditions for the expression of virus-like particles from *Pichia pastoris* cells for a universal influenza vaccine project.

EDUCATION

Udacity
2017 – 2018
Nanodegree, Artificial Intelligence, Certificate of Completion

- Applied Depth-First Search and Constraint-Propagation to solve Sudoku.
- Experimented with Minimax, Alpha-Beta Search, and Iterative Deepening algorithms to create an AI to beat human players in the game of Isolation.
- Using Planning Domain Definition Language (PDDL), A*, and propositional logic developed a solution to find the most efficient route to route air cargo to their respective destinations.
- Using a preprocessed dataset of tracked hand and nose positions extracted from video, trained a set of Hidden Markov Models (HMM) to identify individual sign language words.
- Implemented and applied Multi-layer, Convolutional (CNN), and Recurrent Neural Networks (RNN) on a variety of problems such as classification of over 100 different dog breeds, facial keypoints detection, time-series prediction, language models, and sentiment analysis.

Some of the projects are available at www.github.com/karolisjan/AIND.

UCL
London, UK, 2014 – 2018
PhD, Biochemical Engineering

Sponsored by *Eli Lilly & Co.*
Supervised by *Prof. Suzanne S. Farid* and *Prof. Lazaros Papageorgiou.*
Using Python, Cython, C++14, CUDA, and Docker, developing multi-platform genetic algorithm-based tools for multi-objective planning and scheduling of biopharmaceutical facilities in continuous-time.

Accomplishments

- Gave a keynote lecture on my work at the 27th European Symposium on Computer Aided Process Engineering (ESCAPE 27), Barcelona, Spain, 2017.
  DOI: 10.1016/B978-0-444-63965-3.50219-1.
- Combined a multi-objective genetic algorithm with Monte Carlo simulation to create production plans for a multi-product biopharmaceutical facility with uncertain product demand forecasts. Presented at the 253rd American Chemical Society (ACS) National Meeting, San Francisco, USA, 2017.
- Presented at the 28th European Conference on Operational Research (EURO), Poznan, Poland, 2016.
- Awarded a Year 1 Research Project Prize for Best PhD Project and Poster.

UCL
London, UK, 2010 – 2014
Master of Engineering (MEng), Biochemical Engineering, First-Class Honors

Accomplishments

- Received Jacobs Engineering Design Project Prize.
- Received Head of Department Commendation Award.

Activities

- Fitness instructor at UCLU Muay Thai Club.