Erik-Cristian Seulean

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Education

- **University of St. Andrews** — United Kingdom
  MSc Statistics — *Due August 2022 - Expecting Fist-Class Honours*
  - **Modules**: Markov Chains, Bayesian Statistics, Multivariate Analysis, Statistical Modelling using GLM/GAMs, Quantitative risk analysis, Machine Learning
- **University of Sheffield** — Remote, United Kingdom
  Graduate Certificate in Statistics — *First-Class Honours, July 2021*
  - **Modules**: Mathematical Methods for Statistics, Probability and Probability Distributions, Basic Statistics
- **Politechnica University of Timisoara** — Timisoara, Romania
  B.S.E in Computer Science — *July, 2014*
  - **Modules**: Software Engineering, Computer Architecture, Algorithms, Software Development Fundamentals, Design Patterns, Programming Languages, Databases

Experience

- **Bloomberg LP** — London, United Kingdom
  Senior Software Engineer — *2019 - September 2021*
  - **Taxonomy and Metadata System**: Infrastructure team developing a taxonomy and metadata system to support various asset classes at Bloomberg. Python, GraphQL, Redis, RabbitMQ, Solr, RDF, PostgreSQL, Data Pipeline
    - **Architected ingestion pipelines** that handle ingestion of metadata for datasets such as commodity index tickers.
    - Added **support for sharding** to increase the speed of the ingestion pipeline. Split up the initial ingestion into 8 shards that are running distributed across an entire cluster.
    - Implemented node overlay and concatenation executed on RDF graphs.
    - Worked on **rearchitecting the ingestion pipeline** from a synchronous pipeline to a file based ingestion.
    - Migrated the codebase from Python 2 to Python 3 **decreasing the overall response time of services by 15**%
    - Implemented services in GraphQL to avoid overfetching and underfetching on the existing Bloomberg specific microservice framework.
    - Led **intergration of the metadata system with timeseries datasets**, a company wide effort to support non-tickerized data.
    - Worked on a side project, debugging tool, to help find metadata for given entities regardless of the source of provenience, using a **topological sort algorithm on service APIs and RDF Graphs**.
    - Led the **research into adoption of triplestores** at Bloomberg, an effort across 6 departments towards choosing the right solution to cover the usecases presented at Bloomberg. Researched on solutions such as Virtuoso or TerminusDB.
    - Organized weekly department-wide design discussions, to share knowledge regarding ongoing work.
    - Team lead backup for a team of 7 engineers.
- **Bloomberg LP** — London, United Kingdom
  Software Engineer — *2016 - 2019*
  - **Real Time Analytics**: Application team, maintaining a large variety of analytics, integrated in different products across Bloomberg. Processing several billion trades per day. C++, Distributed, Realtime
    - Implemented Average Volume at Time for non equities and Top Exchanges in the past X minutes.
    - Implemented a **load testing facility** that is used to simulate the impact of market open on the system to assess performance and capacity. I identified a bottleneck in the system and by fixing it, subscriptions are being processed 3 times faster.
    - **Increased availability** of an analytic by implementing fallback to disk in case the database connection cannot be established. This prevents the 1 minute downtime per week when the database cluster is being rebooted.
  - **Recommendation Disclosures and Trade Ideas**: Python, Typescript, Microservices, Event Sourcing
    - Implemented asynchronous messaging using RabbitMQ to allow distribution of recommendations. Added support to publish messages, implemented consumers and set up the middleware.
    - Reduced the codebase by 8% by removing around 100.000 lines of dead or unused code.

Skills

- **Coding**
  - **attrs-strict https://github.com/bloomberg/attrs-strict**: Created and open-sourced a library that allows runtime validation for attrs dataclasses in Python.
  - **bloomberg-bas-middleware**: Maintainer and creator of an inner source library used for Python services at Bloomberg. Created Flask-like middlewares that are used in over 10.000 services running in Python 3 at Bloomberg. Any new service has by default the functionality opted-in.
  - **Python Guild**: Part of a group of 18 engineers leading the direction and adoption of Python at Bloomberg, led the Design Reviews Working group, helping teams to bring projects to a broader audience.
  - **ML 101**: Participated in a 6 month hands on Machine Learning training. The timeseries clustering project developed in a team of 3 was one of the 2 projects out of 15 to be showcased in front of senior management at Bloomberg.
- **Public speaking for large audiences**
  - **"How to migratate services to Python 3"** - Attendance of over 200 engineers.
  - **"Modeling the commodity world"** - Presentation on the architecture of the system I worked on and the different architectural decisions taken in the past years. Attendance of over 150 engineers.
- **Mentorship**
  - Mentored in workshops to help engineers migrate their services to Python 3.
  - Mentored an intern during the summer internship program.
  - Mentored new joiners in the team and helped people contribute to inner-source projects at Bloomberg
- **Architecture and technology**: Large scale distributed systems, Data pipelines, Microservices, GraphQL, PostgreSQL, Redis, Solr, RabbitMQ, Event Sourcing, Git, RDF
- **Languages**: Python, Javascript, Typescript, SQL, C#
- **Mathematics**: Probability theory, Markov chains, Bayesian models, GLMs, statistical inference
- **Machine Learning**: Regression, Trees, Ensemble Methods, Boosting, Neural networks, unsupervised learning
- **Languages spoken**: I speak English(IELTS Grade 8.0) and Romanian fluently. Currently living in London.

Personal Projects

- **G-Research speed coding challenge**: (October 2021) Second place in Scotland at the university coding challenge organised by G-Research. Competed against teams of 4.
- **Cryptocurrency analysis https://github.com/erikseulean/cryptoscraping**: (January 2018) Scraped cryptocurrency data from different sources and created a library that allows to easily analyse prices, market cap and volume. I implemented and plotted the Ichimoku indicator and created correlation plots between google trends and different cryptocurrencies. Python: Numpy, Pandas, Matplotlib, Multiprocessing, Jupyter
- **ColorBlocks**: (November 2015) Awarded 2nd prize competing against 12 teams at HackTM, the largest Hackathon in Eastern Europe lasting 50 hours straight. I was part of a team of three and we developed a cross-platform puzzle game for mobile and tablet devices. Available on Google Play as ColorBlocks. LUA
- **Cycling Community Platform**: (October 2012) Awarded 2nd prize competing against 20 teams in Microsoft Excite, three week competition. Developed a mobile and web based platform for the local cycling community. I was part of a team of three students. C#.NET, Javascript, SQL