

# Alexandry Augustin, PhD

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Impact-driven data scientist with 9+ years of proven track record of delivering valuable insights via software engineering, data analytics, advanced statistical and machine learning methods. Designed and developed over 15+ advanced applications from use cases and functional requirements.

## Professional Experience

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### Research Fellow, Biostatistics

Southampton, UK (remote)

7/2019-6/2022 | *University of Southampton* | *fixed-term*

- Suggested improved treatment strategies for blood pressure management by analysing the outcome of hypertensive patient (~1 million+) using Monte Carlo simulations.
- Results show that (i) a large proportion of patients are over- or under-treated, (ii) long-term blood pressure control can be improved by mitigating therapeutic inertia irrespective of measurement technique.
- Proposed a set of recommendations for inclusion in the national hypertension guidelines (NICE).
- Supported clinicians' decision making by incorporating the research outcome into a mobile app (via Cranworth Medical Ltd).
- Contributed to 4 proposal winning grants securing ~£350,000 in fundings.
- Results published in journal papers.

*Technologies:* Python, Pandas, Numpy, Seaborn, Scikit-Learn, Jupyter Lab, git, Linux

### Data Analyst

Southampton, UK (hybrid)

9/2021-3/2022 | *University Hospital Southampton NHS FT* | *contract*

- Developed a LIMS simulation framework as part of a nation-wide effort to deliver high volume asymptomatic testing for COVID-19 via Direct RT-LAMP assays on saliva samples.
- Contributed to increase processing capacity up to 72,000 samples per day.
- Contributed to improve daily test results throughput to 99%.

*Technologies:* Python, Pandas, Seaborn, Simpy, REST API, PostgreSQL, git

### Research Scientist, Machine Learning

Cambridge, UK (hybrid)

4/2018-3/2019 | *Toshiba Research Europe* | *contract*

- Developed a data driven dialogue topic tracker via deep learning.
- Results show up to 30% improvement in accuracy on human-to-human dialogues.
- Extended the reach of the improvements by deploying the model on Toshiba's group-wide prototype platform.
- Results published in an international workshop (NeurIPS).

*Technologies:* Python, TensorFlow, Pandas, Jupyter Lab, Numpy, NLTK, gensim, git

### Software Developer

London, UK (office-based)

3/2014-11/2014 | *Aquis Exchange Limited* | *permanent*

- Continuously improved the market surveillance system and core system library.
- Enabled the efficient processing of high volume of surveillance alerts and the filtering of historical trading orders.

*Technologies:* C++, Python, bash, git, gcc, gdb, valgrind, Linux

### Lead Software Developer

London, UK (office-based)

2/2012-9/2013 | *GIMO* | *permanent*

- Led the design and development of distributed, multithreaded on-line game server and reusable framework.
- Complete ownership of the technical development from inception to completion.
- Won a number of company-wide coding challenges.

*Technologies:* C++, Boost Libraries, MySQL, XML, bash, Python, git, Linux

### Data Analyst

London, UK (office-based)

7/2010-10/2010 | *Deutsch Bank* | *contract*

- Provided senior management with daily analysis of changes to financial risk exposure (VaR, sensitivities, volatilities and correlations) at group, business line and product specific levels (IR and FX books).

#### **Data Analyst**

**New York, NY / London, UK (office-based)**

9/2008-2/2010 | *Société Générale* | contract

- Continuously monitored of commodities derivatives, arbitrage activities, regulatory margin, risk metrics, financing, and global exposures to banks and clients.
- Successfully met monthly regulatory compliance for capital requirement (Basel II).

*Technologies:* SQL Server, VBA

#### **Project Coordinator**

**New York, NY (office-based)**

1/2008-1/2009 | *Société Générale* | contract

- Provided senior management and project committees data necessary to make decisions by consolidating the company's global portfolio of ~300 outstanding projects.
- Ensured proper project governance by closely monitoring the company's U.S. portfolio of ~100 projects (milestones, major issues, status, progress against budget).

#### **Software Developer**

**London, UK (office-based)**

10/2006-10/2007 | *Cezanne HR Limited* | permanent

- Generated significant cost-savings opportunities to customers by successfully migrating the company's charting software (HRCharter) from a software-as-a-product to a software-as-a-service.

*Technologies:* C++, ASP.NET/C#, Win32, MFC, HTML, JavaScript, CSS, SQL Server

## Education

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### **University of Southampton - Department of Electronics and Computer Science**

**2020**

*PhD in Computer Science*

- Highlighted a link between distributional semantics, topic identification, and human judgment indicating the potential advantages of human-in-the-loop machine learning approaches.
- Research extended in two international conference proceedings (IJCAI, NeurIPS).

*Technologies:* Python, Pandas, Numpy, Scikit-Learn, Jupyter Lab, Torch, TensorFlow, Infer.NET, C#, Lua, R, Linux, git, PyMC, Stan, JAGS, OpenBUGS, NLTK, gensim

### **Imperial College London - Department of Mathematics**

**2011**

*MSc in Mathematics and Finance*

*Technologies:* C++, MATLAB

### **University of Paris-Saclay - Polytech School of Engineering**

**2006**

*MSc in Electronics and Computer Science*

*Technologies:* C, C++, Assembly, MATLAB, Motorola 6800, Microchip 16F8FF

### **University of Paris-Saclay**

**2002**

*BSc in Electronics and Computer Science*

- Within the cohort top 3% (2nd year) and 20% (1st year).

### **Lycée Edouard Branly**

**2000**

*Baccalauréat in Electrical Engineering (Distinction)*

- Within the national top 12% that year.

## Publications

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**Quantitative Strategies for the Personalisation of Antihypertensive Therapy**, A. Augustin, F. Shankar, D. Burns, C. M. Baker-Smith, L. Coutts, Phil J. Chowienzyk, C. N. Floyd, preprint, 2022.

**The Impact of Therapeutic Inertia on Long-term Blood Pressure Control: a Monte Carlo Simulation Study**, A. Augustin, L. Coutts, A. S. Wierzbicki, L. Zanisi, F. Shankar, P. J. Chowienzyk, C. N. Floyd, Journal of Hypertension, 2020.

**Open-domain Topic Identification of Out-of-domain Utterances using Wikipedia**, A. Augustin, A. Papangelis, M. Kotti, P. Vougiouklis, J. Hare, N. Braunschweiler, Thirty-fourth Conference on Neural Information Processing Systems (NeurIPS), Workshop on Human in the Loop Dialogue Systems (HLDS), 2020.

**Learning and Evaluation of Topics via Distributional Semantics**, A. Augustin, University of Southampton Institutional Repository, 2020.

**Bayesian Aggregation of Categorical Distributions with Applications in Crowdsourcing**, A. Augustin, M. Venanzi, A. Rogers, N.R. Jennings, Proceedings of the 26th International Joint Conference on Artificial Intelligence (IJCAI), 2017.

**A Parametric Approach To Bayesian Drift Estimation of Discretely Observed Price Diffusion Processes,**  
A. Augustin, Imperial College London, 2011.

## Certifications

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- National Commodity Futures Examination (Series 3)

## Skills

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**Programming (proficient):** Python, C++, C

**Programming (prior experience):** R, MATLAB, Lua, JavaScript, Java, SQL, ASP.NET, bash

**Statistics:** Bayesian Inference, Variational Inference, Monte Carlo, Gaussian Process

**Machine Learning:** Supervised learning, Self-supervised learning, Unsupervised learning, Deep Learning

**Selected Tools:** PyMC, Stan, JAGS, OpenBUGS, Infer.NET, TensorFlow, Keras, Torch, PyTorch, NLTK, gensim, TCP/IP, REST API, Numpy, Pandas, Matplotlib, Seaborn, Scikit-Learn, Jupyter Lab, Boost C++ Libraries, node.js, git, gdb, gcc, valgrind, Win32, Microsoft Foundation Class (MFC), Linux, Raspberry Pi, Arduino, MongoDB, MySQL, PostgreSQL

## Interests

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Statistics, Machine Learning, Software Development, Data Science, Computer Vision, Computer Graphics, Visualisation.

## Languages

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French (Native, ), English (Fluent, C2), Spanish (Intermediate, B2).