

# Keletso Alex Botsalano

EXPERIENCED SOFTWARE DEVELOPER

P.O. Box 881AAD, Gaborone, Botswana

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## SUMMARY

I am a self-motivated, innovative expert software developer with academic interests in applied mathematics. I love writing code, designing and building complex systems that are robust, fast and secure. I am also a polyglot programmer, experienced in multiple technology stacks. Furthermore, I love playing around with technologies and learning concepts I haven't used before.

## WORK EXPERIENCE

### Botswana Unified Revenue Service

Gaborone, Botswana

PROGRAMMER

October 2019 - Present

- Back-end software development of multiple tax modules including VAT, PAYE, OWHT using Java/Spring framework. URL: <https://eservices.burs.org.bw/>
- Machine learning applied to tax applications using TensorFlow and Rasa
- Allowing integration to other systems via REST web services.
- Strong relational databases usage mostly using Oracle and MySQL.
- On-prem hosting of applications using load-balanced linux servers and reverse proxy using Apache web server.
- CI/CD pipelines to automate testing, building and deploying using Gitlab.

### Botswana Post

Gaborone, Botswana

APPLICATIONS DEVELOPER

May 2017 - September 2019

- Software development of online and over-the-counter apps serving utility services including TV subscription payments, insurance premiums, electricity payments, road tax payments, etc using C#/ASP.NET framework. URL: <https://eservices.botswanapost.co.bw/Eservices/Home.aspx>
- Microservices strongly used to expose functionality to online web-app, mobile app and over-the-counter app.
- Relational database using SQL Server and MySQL using queries, triggers, sequences and stored procedures. ORMs like NHibernate and EntityFramework also used.
- Hosting of services on Azure and CI/CD pipelines from Azure DevOps.

### Botswana Harvard AIDS Insitute Partnership

Gaborone, Botswana

SYSTEMS ANALYST/DEVELOPER

August 2016 - May 2017

- Development of web based applications used in capturing clinical research data (HIV studies) utilising the Django framework. Django uses Python as server-side code, and HTML, CSS and JQuery as client-side code.
- Development and deployment is done on MacOS and Linux servers (Ubuntu distribution).
- Agile methodology strongly followed.

### Corporate Business Solutions Botswana

Gaborone, Botswana

TRAINEE PROGRAMMER

October 2015 - August 2016

- Assisting in building of ASP.NET MVC applications.
- Hosting on-prem applications on Windows servers on IIS.
- First level support on reported production issues

## ACADEMIC BACKGROUND

### University of Hertfordshire

Hertfordshire, United Kingdom

MSc COMPUTER SCIENCE (DISTINCTION GRADE)

September 2018 - October 2019

- MSc Project - Audio Compression Using C#/.NET (68%) - Achieving linear PCM, A-Law and mu-Law compression: investigating wave-forms and spectral analysis of both original and compressed signals using human participants and analytical methods
- Advanced Databases (80%) – relational model, relational algebra, relational calculus, SQL, normalisation, transactions management, query processing, distributed database systems, distributed concurrency control
- Web Scripting and Application Development (75%) - web applications using Node, Express, Angular, MongoDB; MVC architecture; third party services and APIs
- Software Engineering Practice and Experience (85%) - software engineering process models and methodologies, technical engineering practices like version control tools, configuration management tools, code analysis, fault detection, verification techniques, quality engineering practices
- Mobile Standards, Interfaces and Applications (59%) - developing mobile apps: mobile HCI, privacy and security, location and context awareness, technological transparency vs pro-activity, mobile development platforms
- Contemporary Practices in Information Technology (67%) - UK legislation in computing, professional standards and codes, ethical decision-making, risk analysis

## University of Southampton

Southampton, United Kingdom

BENG ELECTRONIC ENGINEERING (UPPER SECOND CLASS GRADE)

September 2011 - June 2015

- Communications & Control (80%) – Fourier analysis, Nyquist sampling rate, Digital modulation, AM spectrum; Linear Time Invariant Systems and Ordinary Differential Equations, Transfer Functions, Poles, Zeroes and the Characteristic Equation, Block Diagram Notation, Standard Inputs and System Response
- Mathematics for Electronic & Electrical Engineering (76%, 82%, 79%, 71%) – Integral Calculus, Differential Calculus, Complex Analysis, Vectors, Matrix Algebra, Eigenvalues and eigenvectors, Statistics, Fourier Series, Fourier Transforms, ODEs and Sturm-Liouville problems, PDEs, Vector Calculus
- Optimization (52%) - Simplex method, Duality theory and sensitivity analysis, Search methods for nonlinear optimization, Lagrange multipliers, Software in solving linear programming
- Radio Communications (80%) - Radio propagation issues, Multiple access techniques, Modulation schemes, Detection techniques, Coherent and non-coherent communications.
- Complex Variables & Transforms (66%) – Complex differentiable functions and Cauchy-Riemann equations, Contour integrals, Laurent and Taylor series, Singularities, residues and the residue theorem, Laplace transforms.

## University of Botswana

Gaborone, Botswana

BSC MATHEMATICS/PHYSICS(YEAR 1 AND 2) (4.9/5.0 GPA)

August 2009 - May 2011

- Introductory Linear Algebra - Vectors and spaces, Matrix transformations, Alternate coordinate systems, Eigen vectors (85%)
- Introductory Logic, Set and Number Theory - Boolean expressions, factors, fractions, modular arithmetic, analytic number theory; set notation, compliment, union, intercept. (83%)
- Calculus I (Integral Calculus) - integration by parts, partial fraction integration, chain rule, numerical integration (87%)
- Calculus II (Differential Calculus) - derivatives, sequences, power series, partial derivatives, optimisation (80%)
- Electricity & Magnetism, Modern Physics - electric charge, electric field, current, circuits, magnetic field & forces, flux, special relativity (97%)
- Mechanics, Vibrations & Waves, Physical Optics - classical mechanics, velocity, acceleration, forces, laws of Motion, work, energy, frequency, wave equation, interference, polarisation, diffraction (94%)

## CERTIFICATIONS/PROFESSIONAL COURSES

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- 2019 **Microsoft Certified Solutions Developer**, App Builder
- 2019 **Microsoft Certified Solutions Associate**, Web Applications (Charter Member)
- 2018 **Microsoft Certified Professional**, Programming in C#

## SKILLS

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<b>Programming</b>	C#, Java, JavaScript, Python, SQL
<b>Databases</b>	SQL Server, MySQL, Oracle, MongoDB
<b>IDEs</b>	Visual Studio, Visual Studio Code, IntelliJ
<b>Back-end Frameworks</b>	ASP.NET (Core), Spring
<b>Web Servers</b>	Nginx, Apache, IIS
<b>CI/CD</b>	Azure DevOps, GitLab
<b>Operating Systems</b>	Windows, Ubuntu
<b>Cloud Technology</b>	Azure
<b>Communication Proficiency</b>	Very good speaking, listening, reading and writing English ability.
<b>Personal Attributes</b>	Superb analytical, logical and problem solving skills; reliable team player; strong leadership skills.

## REFERENCES

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- Prof. Robert Maunder** Electronics and Computer Science  
University of Southampton  
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- Dr. Trevor Barker** Computer Science  
University of Hertfordshire  
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- Dr. Wei Ji** Computer Science  
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