

# JOSHUA BRUTON

Johannesburg, South Africa

[joshuabruton.me](http://joshuabruton.me) [◇ LinkedIn](#)

## CURRENT GOAL

---

I want to complete my masters dissertation while exploring new environments and developing my skills as a developer.

## EDUCATION

---

**University of the Witwatersrand, Johannesburg** *February 2020 - Present*

Master of Science, Computer Science  
School of Computer Science and Applied Mathematics

**University of the Witwatersrand, Johannesburg** *February 2019 - November 2019*

Bachelor of Science (Hons.), Computer Science *Overall Percentage: 88%*  
School of Computer Science and Applied Mathematics

**Microsoft** *November 2019*

Microsoft Technology Associate: Software Development Fundamentals *89%*

**University of the Witwatersrand, Johannesburg** *February 2016 - November 2018*

Bachelor of Science, Mathematics and Computer Science *Overall Percentage: 69%*

**Curro Aurora Private School** *Beginning of time - November 2015*

Matriculation *Bachelor's Pass*

## SKILLS

---

|                                   |                             |
|-----------------------------------|-----------------------------|
| <b>Programming Languages</b>      | Python, JavaScript, and C#  |
| <b>High Performance Computing</b> | Linux and CENTOS            |
| <b>Web Development</b>            | Django and ASP.NET          |
| <b>Microsoft</b>                  | Office and Visual Studio    |
| <b>Extra</b>                      | AWS, Heroku, and PostgreSQL |

## EXPERIENCE

---

**Educess** *2020 - 2021*

*Co-founder*

- Co-founder of Educess, a profit-generating EdTech startup with more than one thousand users. I am leading the development of our web application and the on-boarding of our technical team.

**University of the Witwatersrand** *2020 - 2021*

*Masters Tutor*

- Head tutor for Advanced Analysis of Algorithms, Adaptive Computation and Machine Learning, and Database Fundamentals. Invigilating exams and marking tests for Mathematical Foundations of Data Science.

**Microsoft Brighter Futures Tuition** *2020*

*C# Lecturer*

- Instructed high school students at several schools towards the attainment of the Microsoft Technology Associate certificate. My lectures are available on [YouTube](#).

**University of the Witwatersrand**

2019

*Honours Tutor*

- Tutoring third year Machine Learning, Computer Graphics and Visualisation, Operating Systems and Advanced Analysis of Algorithms, as well as marking test papers and invigilating tests.

**MWR InfoSecurity**

June 2018

*Information Security Intern*

- A 2-week internship focused on the security of web applications. Included instruction in SQL Injection, Kali Linux and cyber security best practices.

**Self-employed**

2016 - 2019

*Part-time web developer*

- Designed and created websites using Django, Wagtail and Wordpress.

**University of the Witwatersrand**

February 2018 - May 2018

*Instructor*

- Designed and instructed a 9-week introduction to Linux course, supervised by Professor Turgay Celik.

**University of the Witwatersrand**

2016

*Physics Student Representative*

- Elected student representative for first year physics. My responsibility was to communicate student concerns to the lecturers.

## PROJECTS

---

### **Dictionary Learning for Clustering on Hyperspectral Images**

We propose a method for clustering the pixels of hyperspectral images using sparse coefficients computed from a representative dictionary as features. We demonstrate that our method, in certain circumstances, outperforms both principal component analysis and non-negative matrix factorisation. Our method has applications in repetitively clustering an ever-growing amount of high-dimensional data, as is the case when working with hyperspectral satellite imagery.

Supervised by: Dr. Hairong Wang at the University of the Witwatersrand

[Published in the Springer Journal of Signal, Image and Video Processing](#)

## ACHIEVEMENTS

---

Dean's list, denoting top 10% performance in my honours program

“Best Project in Computer Science” for “Dictionary Learning for Clustering on Hyperspectral Images”

First place in the Centre for High Performance Computing's 2017 National Conference. A competition in which teams from around the country construct and benchmark high-performance clusters.

Third place in the International Student Cluster Competition representing the CHPC, South Africa and Dell at ISC in Germany.

Received the Postgraduate Merit Award, a full, merit-based scholarship for honours and masters at the University of the Witwatersrand.

Huawei Research Incentive Prize for “SnakeNet: A Convolutional Neural Network for Competitive Snake Game”.

Member of the Golden Key International Honours Society, denoting top 15% performance in my degree program