Ajoodha

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South Africa
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english & afrikaans

♥ Java, TensorFlow
Python, C++, C, C#
PHP, MatLab
JavaScript
Ruby
SQL & HTML

LaTeX, Microsoft Office

Probabilistic Graphical Models, Causation, Knowledge Representation and Reasoning, Logic, Computer Vision, Data Mining, Image Processing, Machine Learning, Spectral Analysis, Evolutionary Computation, Algorithmic Composition, Pattern Recognition.

2018–2019 in Higher Education — The University of the Witwatersrand, Johannesburg
Specialisation in Higher Education. Honours equivalent, NQF8.

2015–2018 of Philosophy, Computer Science — The University of the Witwatersrand, Johannesburg
THESIS TITLE: "Influence Modelling and Learning between Dynamic Bayesian Networks using Score-based Structure Learning"
This thesis explores novel techniques to track influence between partially observable stochastic processes by using structure learning for Bayesian networks.

2015 Degree of Music — Trinity College, London
The standard of piano performance is equivalent to the performance component on completion of a full-time undergraduate course at a conservatoire or university.

2014 of Science, Computer Science — The University of the Witwatersrand, Johannesburg
DISSERTATION TITLE: "Automatic Music Genre Classification" -
This dissertation explores novel techniques for music genre classification to improve music information retrieval and recommendation services.

2010–2013 of Science — The University of the Witwatersrand, Johannesburg
Specialization in Computer Science -
RESEARCH REPORT: "Context-free Grammars, Gaussian Distributions and Genetic Algorithms in Algorithmic Music Composition"
This research report explored a novel methodology to compose music using Charles Darwin's theory of evolution and natural selection.
Introduction to Research Methods, Compilers, Analysis of Algorithms, Image Processing, Knowledge Representation and Reasoning, Computational Molecular Biology, Multi-agent Systems, Research Report.
Architecture and Networks III, Formal Languages and Automata III, Software Engineering III, Algorithms and Artificial Intelligence III, Application and Analysis of Algorithms II, Database Fundamentals II, Operating Systems II, Programming Languages II, Computer Science I.
Real Analysis III, Mathematical Economics III, Group Theory III, Complex Analysis III, Coding and Cryptography III, Number Theory III, Discrete Mathematics II, Linear Algebra II, Group Theory II, Advanced Analysis II, Multivariable Calculus II, Basic Analysis II, Calculus I, Algebra I.

2012 Degree of Music — Trinity College, London
PIANO RECITAL: -
The standard of performance is equivalent to the performance component of the first year in a full-time undergraduate course at a conservatoire or university.

2010 Pianoforte Examination — Royal School of Music, London
Specialization in Piano -

2017–Now Lecturer — Computer Science and Applied Mathematics, The University of the Witwatersrand
Associate lecturer for *Data Structures and Algorithms (COMS2004)* and Basic Computer Organisation (COMS1015) for electrical engineering and computer science students. Supervisor for Honours and Masters Students.

2017–Now **Lecturer** Computer Science and Applied Mathematics, The University of the Witwatersrand

Associate lecturer for *Data Structures and Algorithms (COMS2004)* and Basic Computer Organisation (COMS1015) for electrical engineering and computer science students. Supervisor for Honours and Masters Students.

2015–2016 **Lecturer** Computer Science and Applied Mathematics, The University of the Witwatersrand

Sessional lecturer for *Data Structures and Algorithms (COMS2004)* and Basic Computer Organisation (COMS1015) for electrical engineering and computer science students.

2013–2015 **Tutor** Computer Science, The University of the Witwatersrand

Developed Laboratory and other written assessments for first year computer science students. Examined and assessed students' submissions, this included marking test and assignments.

2018 — The University of the Witwatersrand

Valued at . Toward the Postgraduate Diploma in Higher Education.

2017 — University of Pretoria

Valued at . This funding is for emerging staff at selected SA HEIs who are also simultaneously registered for a M/PhD. The purpose of the project is to support the development of better qualified in-service mathematics and statistics academics at all higher education institutions in South Africa, and in so doing better ensure a more sustainable academic pipeline.

2017 — The University of the Witwatersrand

Prize: Machine Learning, A probabilistic Perspective. Kevin Murphy.

2017 — The University of the Witwatersrand

Valued at . The bursary is based on full-time employment by the university.

2016 — National Research Foundation

Valued at . The award of an NRF scholarship to a student will be based on past, current and potential academic performance. Selection criteria will include academic merit, research potential, leadership qualities and previous awards, various prizes and honours.

2015 — National Research Foundation

Valued at . To attend the Pattern Recognition Association of South Africa conference. Selection criteria includes academic merit, research potential, leadership qualities and previous awards, various prizes and honours.

2015 — National Research Foundation

Valued at . The award of an NRF scholarship to a student will be based on past, current and potential academic performance. Selection criteria will include academic merit, research potential, leadership qualities and previous awards, various prizes and honours.

2015 — Sydney, Australia

Topic: "Successfully Positioning and Marketing a Product Down-Under". We were tasked with creating and pitching an advertising campaign to Australian executives. The product advertised was a music recommendation system using content-based features to market Australian musical artists.

2015 — Pennsylvania, Washington

Valued at . Nomination to join the 2015 International Scholar Laureate Program (ISLP) delegation on *Business & Entrepreneurship*, in Melbourne and Sydney, Australia. The top 5% of students from distinguished Honour societies were nominated.

2015 — The University of the Witwatersrand

Valued at . Awarded to students who pass with distinction in their Masters of Science degree.

2014 — National Research Foundation

Valued at . The award of an NRF scholarship to a student will be based on past, current and potential academic performance. Selection criteria will include academic merit, research potential, leadership qualities and previous awards, various prizes and honours.

2014 — The University of the Witwatersrand

Valued at . This scholarship award is presented to Ritesh Ajoodha in recognition of superior scholastic attainments and outstanding academic merit. In witness whereof the seal of the society and the signatures of the council officers thereof are hereunto affixed.

2014 — The University of the Witwatersrand

Valued at . Awarded to students who pass with distinction in their Honours year of a Bachelor of Science degree.

2014 — The University of the Witwatersrand

Awarded to top 15% of academic achievers.

2010 — The University of the Witwatersrand

Valued at per distinction.

R. Ajoodha and B. Rosman. (2018). Advancing Intelligent Systems by Learning the Influence Structure between Partially Observed Stochastic Processes using IoT Sensor Data. Accepted in AAAI SmartIoT: AI Enhanced IoT Data Processing for Intelligent Applications, New Orleans Riverside, New Orleans, Lousiana, USA., May 2018.

R. Ajoodha. (2018). *Influence Modelling and Learning between Dynamic Bayesian Networks using Score-based Structure Learning*. Ph.D. Thesis. Supervised by Dr. B. Rosman. The University of the Witwatersrand, South Africa.

R. Ajoodha and B. Rosman. (2017) *Tracking Influence between Naïve Bayes Models using Score-Based Structure Learning.* The Pattern Recognition Association of South Africa (PRASA). IEEE accredited.

R. Ajoodha, B. Rosman. (2017). *Computationally Tracking Direct Influence between Dynamic Topic Models*. Presented at the Deep Learning Indaba Symposium session.

R. Ajoodha, R. Klein, B. Rosman. (2015). *Single-labelled Music Genre Classification using Content-based Features*. Pattern Recognition Association of South Africa, IEEE. Port Elizabeth, South Africa.

R. Ajoodha. (2015). *Automatic Music Genre Classification*. Masters Dissertation. Supervised by Dr. B. Rosman and Dr. R Klein. The University of the Witwatersrand, South Africa.

R. Ajoodha. (2014). *Automatic Music Genre Classification.* Research Poster. SAICSIT M&D Symposium: Computer Science Stream. Leriba Lodge, Centurion, South Africa.

R. Ajoodha, R. Klein, M. Jakovljevic. (2014). *Using Statistical Models and Evolutionary Algorithms in Algorithmic Music Composition*. In Khosrow-Pour Mehdi, editor, The Encyclopedia of Information Science and Technology, 3rd edition, IGI Global: International Publisher of Progressive Academic Research Books and Journals. Volume 10, Number doi:10.4018/978-1-4666-5888-2, pages e37893, Hershey, Pennsylvania, United States.

R. Ajoodha. (2013). *Context-free Grammars, Gaussian Distributions and Evolutionary Algorithms in Algorithmic Music Composition.* Research Report. Supervised by Dr. R. Klein. The University of the Witwatersrand, South Africa.

Ritesh Ajoodha and Benjamin Rosman. Structure Discovery of Direct Influence between Processes Represented by Hidden Markov Models (Oct 5, 2017)

Ritesh Ajoodha and Benjamin Rosman. Computationally Tracking Direct Influence between Hierarchical Dynamic Bayesian Networks using Score-based Structure Learning (July 1, 2017)

Ritesh Ajoodha and Benjamin Rosman. Structure Discovery of Direct Influence between Processes Represented by Hidden Markov Models. Manuscript to be submitted. November, 2017.

1. (2018). Masters Dissertation *Prediction with Incomplete Data*. Data Science, University of the Witwatersrand.
2. (2018). Masters Dissertation. *An assessment of student performance at higher institutions*. Data Science, University of the Witwatersrand.
3. (2018). Honours research report. *Automatic Venue Allocation*. Computer Science, University of the Witwatersrand.

4. (2017). Honours research report. *Content-based Music Recommendation Using Probabilistic Models*. Computer Science, University of the Witwatersrand.
5. (2017). Honours research report. *Predicting the Completion of a Student's Science Degree based only on their First-year Marks*. Computer Science, University of the Witwatersrand.
6. (2017). Honours research report. *Automatic Labelling of Student Results as PCD, RET, MBR and MRNM*. Computer Science, University of the Witwatersrand.

1. Unknown Authors. Efficient Bayesian Methods for Counting Processes in Partially Observable Environments. 2017. AISTATS.
2. Maria Bauza and Alberto Rodriguez. GP-SUM. Gaussian Processes Filtering of non-Gaussian Beliefs. Mechanical Engineering Department — Massachusetts Institute of Technology. AISTATS.
3. Abdulkadir Lukman, et. al (2017). *Interatomic potential effect on silicon machined with diamond-a molecular dynamics study*. Submitted to PRASA. revied on 2017/10/14 (EasyChair).