Hugh Murrell
Resume

March 2022

Personal Details

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Birth Date 17 December 1954.

Birth Place Kasama, Zambia.

Citizenship dual, South African and British

Education

1971: Matric, Hyde Park, Johannesburg.

1975: B.Sc., Natal University, Pietermaritzburg.

1981: B.Sc. Hons, Rhodes University, Grahamstown.

1982: M.Sc., Rhodes University, Grahamstown.

1995: PhD., Natal University, Durban.

Awards

Academic Colours from Rhodes.

Experience

1977-1978: Natal Provincial Administration in Pietermaritzburg, Programmer.

1979-1984: Rhodes University, Computing Services, Programmer.

1985-1986: Department of Mathematics, Rhodes University, Lecturer.

1987-2003: Department of Computer Science, Natal University,
Senior Lecturer and Associate Professor (Durban campus).

2004-2014: School of Computer Science, University of KwaZulu-Natal, Professor (Pietermaritzburg campus)

- Head of School (2005-2007)
- PI for Bioinformatics NBN grant (2006-2009)

2015-2018: Contract Lecturing and Postgrad supervision, University of KwaZulu-Natal.

2019-2019: Postgrad supervision, University of KwaZulu-Natal.

2020-2020: Developed Covid-19 dashboard.

2021-2022: Developed PorpidPostproc pipeline for h705 trials.

Postgrad Supervision

Hilton Goldstein, MSc thesis, 1990, *Computer Enhanced Skull Surgery*

Hilton Goldstein, PhD thesis, 1994, *Space Frequency decomposition of arbitrary signals*

Cuan Brown, MSc thesis, 2000, *A Real Time, Secure, Internet Based, Auctioning System*

Mark Lewis, MSc thesis, 2001, *Spectral Techniques for Roughness Estimation*

Theo Naicker, MSc thesis, 2002, *Modelling the two body abrasive wear problem*

Keagan Moodley, MSc thesis, 2002, *Pseudo-Colouring of grayscale images*

Luke Vorster, MSc thesis, 2004, *A framework for computer music*

Kieran O'Neill, MSc thesis, 2007, *Relieving the Cognitive Load of Constructing Molecular Biological Ontology Based Queries by means of Visual Aids*

Rafael Jimenez, MSc thesis, 2007, *Vector Graphics to improve Blast Graphic Representations*

John McGuiness, MSc thesis, 2009, *Investigation of techniques for automatic polyphonic music transcription using wavelets,*

Anisa Ragalo, MSc thesis, 2011, *An analysis of algorithms to estimate the characteristics of the underlying population in Massively Parallel Pyrosequencing data*

Devin Pelser, Msc thesis, 2019, *Deep and dense sarcasm detection*

Selected Publications

1996: *Computer Aided Tomography*, The Mathematica Journal, Vol 6, No. 2, pp.60-65

2001: *On Measuring Roughness*, South African Computer Journal, Number 27, pp 49-56, Co-Authors: Mark Lewis, Colin Jermy and Tally Palmer.

2004: *A colour-map plugin for the open source, Java based, image processing package, ImageJ*, Computers & Geosciences, vol 30, pp 609-618. Co-Author: Keagan Moodley.

2008: *Gene Spotting with Support Vector Machines*, Proceedings of IMS2008, Maastricht.

2011: *Fisher Discrimination with Kernels*, The Mathematica Journal, Vol 13, July 26, Co-Authors: Kazuo Hashimoto and Daichi Takatori.

2014: *R^2-equitability is satisfiable*, Proc Natl Acad Sci USA , early edition, Co-Authors: Ben Murrell and Daniel Murrell.

2016: *Discovering General Multidimensional Associations*, PLoS ONE 11(3): e0151551. doi:10.1371/journal.pone.0151551 Co-Authors: Ben Murrell , Daniel Murrell.

2019: *Deep and dense sarcasm detection*, `https://arxiv.org/abs/1911.07474`, November 2019, Co-Author: Devin Pelser.

2019: *Deep Learning Notes, with Julia and Flux*, Edition 1, `https://HughMurrell.github.io/DeepLearningNotes` Co-Author: Nando de Freitas.

Coding Projects

CRAN package During my 2012 sabbatical I wrote an R data mining package for discovering non-linear associations between variables in a dataset. Read `https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0151551` for further details.

Deep Learning with Julia During 2018 I developed a textbook that teaches Deep Learning using the Julia computing ecosystem. The current version of the text is available online `https://hughmurrell.github.io/DeepLearningNotes/index.html`.

Covid-19 tracking During 2020, I constructed a Julia script to compute Rt estimates at scale from global data sets. This script updates nightly and allows users to compare Covid outbreaks from region to region. Results can be viewed here; `https://reproduction.live/world`

Referees

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Computer Science,

University of Cape Town.

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