I. Gordon Blackadder

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A Ph.D. candidate in physics, I have explored data analysis at the scale of the universe and have developed a passion for finding data-driven solutions and strategic improvements. As well as extensive numerical skills, an affinity towards solving problems, and an eye for complex patterns, I have experience communicating technical subject matter to audiences of many backgrounds. I am looking for an opportunities in data science at exciting new ventures and startups.

Technical Skills

- Proficient in python for data analysis (NUMPY, SCIPY, SCIKIT-LEARN, PYMC2, MATPLOTLIB)
- Experience with distributed computing (SLURM)
- Familiarity with other programming languages: C, SQL, LaTeX

Education

Ph.D. in Physics, Brown University, USA **2011-present**

- Research on dark matter decay theory with an emphasis on statistical analysis of cosmology data
- Graduating in May 2016

Masters in Theoretical Physics, University of Saint Andrews, UK **2006-2011**

- Five-year combined bachelors/masters course
- Graduated with First Class (Honours)

Papers and Publications

"Dark matter with two- and many-body decays with constraints from cosmological probes" **2015**
Blackadder and Koushiappas, Physical Review D 93, 023510 (2016)
(preprint arXiv: arxiv.org/abs/1510.06026)

- Performed machine learning (a Markov Chain Monte Carlo analysis) to find the allowed parameter space of decaying dark matter models. The analysis was built in Python, with extensive use of NUMPY and SCIPY, and executed through the SLURM workload manager
- Constrained models against multiple astrophysics data sets
- Created sophisticated plots in MATPLOTLIB and a detailed discussion on the causes of the constraints

"Dark matter with two- and many-body decays and supernovae type Ia" **2014**
Blackadder and Koushiappas, Physical Review D 90, 103527 (2014)
(preprint arXiv: arxiv.org/abs/1410.0683)

- Derived two general and relativistic models of decaying dark matter
- Modeled in Python and constrained against supernova observations with a goodness-of-fit analysis
- Plotted results to effectively show the progress made over previous research findings

Other Research Projects

"Are films shorter when the scriptwriter directs," a data analysis project **2015**
Code, data and analysis available on github.com/igblackadder/Film_Project

- Developed a multi-threaded web scraping algorithm, using BEAUTIFULSOUP and regular expressions, to obtain data on just under 200,000 films by analyzing nearly 1 million web pages
- Performed machine learning to extract features from the data, which were fitted by a gaussian process regression. This used PYMC2 and SCIKIT-LEARN.
- Produced detailed and easy to read plots in MATPLOTLIB to elegantly show the results

"Diagnosing Bladder Cancer," a data analysis project, University of Saint Andrews, UK **2010**

- Applied Principle Components Analysis to a bladder tissue Raman spectra dataset in an attempt to distinguish between cancerous and non-cancerous samples

Teaching

Teaching Assistant, Brown University, USA **2012-2014**

- Instructed undergraduate students in physics concepts and laboratory skills
- Collaborated with students and professors to optimize learning
- Provided formative and summative assessment

Leadership and Community Service

Youth Group Leader

Providence Presbyterian Church child care, USA (ages 3-10) **2013-present**

Urban Saints weekly youth group, UK (ages 12-17) **2006-2011**

- Designed curricula and lesson plans in a team, ensuring safety and child wellbeing
- Organized a yearly weekend camp for economically disadvantaged teenagers from Saint Andrews

Treasurer, University of Saint Andrews Christian Union, UK **2007-2010**

- Wrote and negotiated a budget with an annual expenditure of more than £7500
- Worked in a committee to organize accommodation, transport and speakers for a conference of 120 people

Other Interests

- Co-host of an international politics video discussion blog, "LeafnBean." The show, previously broadcast weekly on Saint Andrews Radio as "Coffee and Tea," features discussion on global affairs as well as interviews with UK politicians including the Rt. Hon. Sir Menzies Campbell MP.
- I enjoy taking MOOCs and drinking tea.