



COMPLIANCE WITH THE DATA PROTECTION ACT 1998

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RCUK PROPOSAL

Document Status: With Owner

STFC Reference:

STFC GCRF Foundation Awards 2017

Organisation where the Grant would be held

Organisation	University of Sheffield	Research Organisation Reference:	153948
Division or Department	Physics and Astronomy		

Project Title [up to 150 chars]

From Stars to Baht: Broadening the economic impact of astronomical data handling techniques in Thailand

Start Date and Duration

a. Proposed start date

01 February 2018

b. Duration of the grant (months)

12

Applicants

Role	Name	Organisation	Division or Department	How many hours a week will the investigator work on the project?
Principal Investigator	Dr James Mullaney	University of Sheffield	Physics and Astronomy	7.5
Co-Investigator	Dr Tossapon Boongoen	Mae Fah Luang University	UNLISTED	15
Co-Investigator	Dr Anant Eungwanichayapant	Mae Fah Luang University	School of Science	7.5
Co-Investigator	Dr NATTHAKAN IAM-ON	Mae Fah Luang University	UNLISTED	7.5
Co-Investigator	Dr Utane Sawangwit	NARIT	UNLISTED	7.5
Co-Investigator	Dr Supachai Awiphan	NARIT	UNLISTED	7.5
Co-Investigator	Ms Pittana Noichangkid	Mae Fah Luang University	UNLISTED	7.5
Co-Investigator	Mr Vittayasak Rujivorakul	Mae Fah Luang University	School of Science	7.5

Objectives

List the main objectives of the proposed research in order of priority

The primary objective of the proposed research is to determine how the data handling and analysis skills and technologies we have developed through analysing astronomical data can be adapted to the needs of local Thai businesses and organisations. Our aim in doing so is to increase the productivity of those external partners, thereby having real impact on the local economy. We also see capacity building as a major objective of the research. This is in terms of the Thai and UK

team members gaining experience of working closely with external partners, developing skills and knowledge that will be valuable for sustaining current and establishing future external collaborations.

Summary

Describe the proposed research in simple terms in a way that could be publicised to a general audience.

The most effective way of reducing levels of poverty in developing countries is through their continued economic development, which leads to increased levels of income per person. Research has shown that one of the main ways of achieving this is through maintained increases in levels of productivity (defined as output per hour worked) within businesses and organisations. For an upper-middle income economy such as Thailand's, productivity growth will increasingly rely on innovation, which today requires access to high-tech skills. With more and more Thai industries collecting data on their customers, production lines, distribution networks, stock prices, etc., one of the most crucially needed high-tech skills is the ability to handle large amounts of digital data. Our ongoing project aims to provide such skills for businesses and organisations in the Northern region of Thailand which has traditionally suffered from weaker economical growth compared to other regions such as Bangkok. The first step in this project -- for which we received Newton funding -- was to use large astronomical datasets to expose Thai data scientists and their postgraduate students to "Big Data". Following the success of that first stage, we now request GCRF funding to facilitate working with five pre-selected businesses and organisations to research how we can adapt the technologies and skills we have developed to meet their data handling and analysis needs. In doing so, we will be using our team's skills and technologies to have a real economic impact on these external partners, while we build our capacity for working with businesses and organisations. This experience will be excellent preparation for our ultimate goal of establishing a fully self-sustaining "Centre of Excellence" for researching technologies to meet the data handling and analysis needs of businesses and organisations in Northern Thailand.

Academic Beneficiaries

Describe who will benefit from the research

Data scientists in Thailand will benefit from gaining exposure to a more varied range of large datasets, including those collected for commercial reasons. They will also benefit from researching new ways of databasing and analysing this data. The UK astronomer PI will benefit from learning and researching new ways to analyse large digital datasets. Such skills will become increasingly important for his core research as astronomy continues its progression to a "Big Data" science with the forthcoming Large Synoptic Sky Survey (LSST) and the Square Kilometre Array (SKA).

Impact Summary

Impact Summary (please refer to the help for guidance on what to consider when completing this section)

Please see our Pathways to Impact statement.

Summary of Resources Required for Project

Financial resources

Summary fund heading	Fund heading	Full economic Cost	STFC contribution	% STFC contribution
Directly Incurred	Staff	0.00	0.00	80
	Travel & Subsistence	3960.00	3168.00	80
	Other Costs	0.00	0.00	80
	Sub-total	3960.00	3168.00	
Directly Allocated	Investigators	11685.20	9348.16	80
	Estates Costs	2377.00	1901.60	80

Summary of staff effort requested

	Months
Investigator	22.25
Researcher	0
Technician	0
Other	0
Visiting Researcher	0
Student	0
Total	22.25

	Other Directly Allocated	214.00	171.20	80
	Sub-total	14276.20	11420.96	
Indirect Costs	Indirect Costs	7789.00	6231.20	80
Exceptions	Staff	23598.22	23598.22	100
	Travel & Subsistence	0.00	0.00	100
	Other Costs	28939.04	28939.04	100
	Sub-total	52537.26	52537.26	
	Total	78562.46	73357.42	

Other Support

Details of support sought or received from any other source for this or other research in the same field.

Awarding Organisation	Awarding Organisation's Reference	Title of project	Decision Made (Y/N)	Award Made (Y/N)	Start Date	End Date	Amount Sought / Awarded (£)
STFC Swindon Office	ST/P005594/1	Newton STFC-NARIT: Using astronomy surveys to train Thai researchers in Big Data analysis	Y	Y	01/02/2017	31/01/2018	76589

Staff

Directly Incurred Posts

Role	Name /Post Identifier	Start Date	EFFORT ON PROJECT		Scale	Increment Date	Basic Starting Salary	London Allowance (£)	Other Allowances (£)	Super-annuation and NI (£)	Total cost on grant (£)
			Period on Project (months)	% of Full Time							
Co-Investigator	Dr Tossapon Boongoen*	01/02/2018	12	40	0	01/02/2018	6614.67	0	0	0	6614.67
Co-Investigator	Dr Anant Eungwanichayapant*	01/02/2018	12	20	0	01/02/2018	4000.30	0	0	0	4000.30
Co-Investigator	Dr NATTHAKAN IAM-ON*	01/02/2018	12	20	0	01/02/2018	3914.52	0	0	0	3914.52
Co-Investigator	Dr Utane Sawangwit*	01/02/2018	12	20	0	01/02/2018	3374.83	0	0	0	3374.83
Co-Investigator	Dr Supachai Awiphan*	01/02/2018	12	20	0	01/02/2018	2249.89	0	0	0	2249.89
Co-Investigator	Ms Pittana Noichangkid*	01/02/2018	12	20	0	01/02/2018	1641.01	0	0	0	1641.01
Co-Investigator	Mr Vittayasak Rujivorakul*	01/02/2018	12	20	0	01/02/2018	1803.00	0	0	0	1803.00
Total											23598.22

* The cost is an exception and therefore not subject to FEC rules.

Applicants

Role	Name	Post will outlast project (Y/N)	Contracted working week as a % of full time work	Total number of hours to be charged to the grant over the duration of the grant	Average number of hours per week charged to the grant	Rate of Salary pool/banding	Cost estimate
Principal Investigator	Dr James Mullaney	Y	100	330	7.5	58426	11685
						Total	11685

Travel and Subsistence

Destination and purpose		Total £
Within UK	Flights, accom., subsistence for 3 trips to Thailand (J Mullaney)	3960
Total £		3960

Other Directly Incurred Costs

Description	Total £
Computing Equipment	7499.63
Travel for Thai Collab - 2 people (Flights and accom 1 week)	3400.89
Other Costs (BAHT):	13318.87
3 networking events- 349,200	
Initial working phase- 9,000	
Implementation phase- 21,000	
User training- 83,000	
Deployment & user feedback- 3,000	4719.65
Public Outreach- 102,500	
Indirect and Estates for Thai organisation	4719.65
Total £	28939.04

Other Directly Allocated Costs

Description	Total £
Infrastructure Technicians	214
Total £	214

Estates Costs

Amount (mandatory)	£2,377
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Indirect Costs

Amount (mandatory)	£7,789
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Human Participation

Would the project involve the use of human subjects?	Yes	No✓
If yes, would equal numbers of males and females be used?	Yes	No✓
Would the project involve the use of human tissue?	Yes	No✓
Would the project involve the use of biological samples?	Yes	No✓
Would the project involve the administration of drugs, chemical agents or vaccines to humans?	Yes	No✓
Will personal information be used?	Yes✓	No
If yes, will the information be anonymised and unlinked?	Yes✓	No
Or will it be anonymised and linked?	Yes	No✓
Will the research participants be identifiable?	Yes	No✓

Please provide details of any areas of substantial or moderate severity:
The project will involve analysing anonymised data collected by the external partners prior to the start of the research project. The project partners have given us their commitment -- in their Letters of Support -- that any data they provide will be robustly anonymised, such that the original providers of the data cannot be identified by any member of the research team, using either the dataset itself, or any other dataset that may be accessed by members of the research team.
Prior to the start of the project, we are unable to know the numbers and sexes involved in the datasets due to the commercial interests of some of the partners.

Animal Research

Would the project involve the use of vertebrate animals or other organisms covered by the Animals (Scientific Procedures) Act?	Yes	No <input checked="" type="checkbox"/>
If yes, what would be the maximum severity of the procedures?	Mild or non-recovery	
	Moderate	
	Severe	
Please provide details of any areas which are Moderate or Severe:		

Animal Species

Does the proposed research involve the use of non-human primates?	Yes	<input checked="" type="checkbox"/> No
Does the proposed research involve the use of dogs?	Yes	<input checked="" type="checkbox"/> No
Does the proposed research involve the use of cats?	Yes	<input checked="" type="checkbox"/> No
Does the proposed research involve the use of equidae?	Yes	<input checked="" type="checkbox"/> No

Please select any other species of animals that are to be used in the proposed research.

Fish	Sheep
Rabbit	Rat
Amphibian	Poultry
Cow	Mouse
Reptile	Guinea Pig
Pig	Other Rodent
Bird	Other Animal

Genetic and Biological Risk

Would the project involve the production and/or use of genetically modified animals?	Yes	<input checked="" type="checkbox"/>	No
If yes, will the genetic modification be used as an experimental tool, e.g., to study the function of a gene in a genetically modified organism?	Yes	<input checked="" type="checkbox"/>	No
And will the research involve the release of genetically modified organisms?	Yes	<input checked="" type="checkbox"/>	No
And will the research be aimed at the ultimate development of commercial or industrial genetically modified products or processes?	Yes	<input checked="" type="checkbox"/>	No
Would the project involve the production and/or use of genetically modified plants?	Yes	<input checked="" type="checkbox"/>	No
If yes, will the genetic modification be used as an experimental tool, e.g., to study the function of a gene in a genetically modified organism?	Yes	<input checked="" type="checkbox"/>	No
And will the research involve the release of genetically modified organisms?	Yes	<input checked="" type="checkbox"/>	No
And will the research be aimed at the ultimate development of commercial or industrial genetically modified products or processes?	Yes	<input checked="" type="checkbox"/>	No
Would the project involve the production and/or use of genetically modified microbes?	Yes	<input checked="" type="checkbox"/>	No
If yes, will the genetic modification be used as an experimental tool, e.g., to study the function of a gene in a genetically modified organism?	Yes	<input checked="" type="checkbox"/>	No
And will the research involve the release of genetically modified organisms?	Yes	<input checked="" type="checkbox"/>	No
And will the research be aimed at the ultimate development of commercial or industrial genetically modified products or processes?	Yes	<input checked="" type="checkbox"/>	No

Implications

Are there ethical implications arising from the proposed research?

No

Provide details of what they are and how they would be addressed [up to 1000 characters]

Approvals

Have the following necessary approvals been given by:			
The Regional Multicentre Research Ethics Committee (MREC) or Local Research Ethics Committee (LREC)?	Yes	No	Not required✓
The Human Fertilisation and Embryology Authority?	Yes	No	Not required✓
The Home Office (in relation to personal and project licences, and certificates of designation)?	Yes	No	Not required✓
The Gene Therapy Advisory Committee?	Yes	No	Not required✓
The UK Xenotransplantation Interim Regulatory Authority?	Yes	No	Not required✓
Administration of Radioactive Substances Advisory Committee (ARSAC)?	Yes	No	Not required✓
Other bodies as appropriate? Please specify.			