Job Announcement for Two Postdocs

The Faculty of Science at the University of Manitoba has two open post-doctoral positions in extragalactic multi-wavelength astrophysics with emphasis on active galactic nuclei and clusters of galaxies, and requiring skills and experience in either data science and/or data visualization. The candidates will be part of a multidisciplinary team of researchers from the University of Manitoba analyzing the data from the Very Large Array Sky Survey (VLASS) and collaborating with experts at the Universities of Toronto and Alberta, covering the domains of astrophysics, data science and scientific visualization. The positions will be 50% astrophysics research and 50% computer science.

== The projects ==

The astrophysics research will consist of reduction and analysis of multi-wavelength (e.g., Chandra X-ray, Gemini and HST optical/infrared, ALMA and VLA radio) observations of Active Galactic Nuclei (AGN) and Clusters of Galaxies with emphasis on the interaction of the AGN with its environment. This will be in collaboration with Profs. Stefi Baum and Chris O’Dea and will involve working with several undergraduate and graduate students. Successful candidates will be expected to publish research results in the refereed journal literature.

The computer science component of the position is a joint project between research groups in Computer Science (Profs. Pourang Irani and Neil Bruce) and Astronomy (Profs. Chris O’Dea, Stefi Baum, Samar Safi-Harb, Jayanne English, and Dr. Gilles Ferrand). The science data products that will emerge from the Square Kilometre Array (SKA) will not be in a final state optimized for data analysis, and the data volumes will be so large that direct delivery to users will not be feasible. The SKA project therefore envisages an international collaborative alliance of inter-operating centres. A Canadian SKA Regional Centre would need to provide services such as archiving, processing, user support and pipeline development. We are part of a large collaboration of Canadian Universities supported by a Canada Foundation for Innovation (CFI) grant to develop a pilot virtual regional centre for radio astronomy, using data from VLASS, the Canadian Hydrogen Intensity Mapping Experiment (CHIME), and the Australian Square Kilometre Array Pathfinder (ASKAP).

== Links ==
https://science.nrao.edu/science/surveys/vlass
http://www.cs.umanitoba.ca/
https://www.tourismwinnipeg.com/plan/about-winnipeg

== Profile ==
Candidates must have a PhD degree or equivalent in astrophysics with skills in computational and/or data sciences and software development; or, demonstrate the ability to acquire skills in these areas. Programming competence and fluency in written and spoken English are required. Experience in radio astronomy and/or multi-wavelength data analysis is highly desired.
Analysis tasks may include creation of a catalog of VLASS continuum data products, development of algorithms for multi-band data matching and source classification, and development of perception-based visualization schemes for large, multi-waveband data and products of data mining tools.

The candidates will merge expertise from the fields of astrophysics with that of visual analytics, to combine human interaction via visual representations with machine learning, including dimensionality reduction and clustering. The candidate may also explore promising emerging technologies such as virtual and augmented reality.

== Offer ==
We offer:
* Full-time employment at University of Manitoba with a negotiable starting date but ideally April 1, 2018 or soon after for a period of 3 years.
* A competitive salary $40,000 to $60,000 CAD per year with benefits depending on qualifications and seniority.
* A budget allowing the postdoctoral fellow to hire and supervise co-op students, and travel to related scientific conferences.
* We invite applications from those who can support and enhance our diversity, including women, Indigenous peoples, other visible minorities, and those committed to a diverse environment. Application materials, including letters of reference, will be handled in accordance with the "Freedom of Information and Protection of Privacy Act". Please note that curricula vitae may be provided to participating members of the search process.
* Applications will be accepted until Dec 31, 2017

== Contact ==
For more information please contact Prof. Chris O’Dea, email: odeac@umanitoba.ca