Monika **Obrocka**

RESEARCH DATA SCIENTIST

(060) 697 1142 | mkobrocka@gmail.com | pinsleepe.github.io | pinsleepe | monika-obrocka-5b472446

Experience

SKA SA Science Data Processing
Cape Town, SA
RESEARCH DATA SCIENTIST — *Sep 2016 - PRESENT*
- Developing of algorithms and software related to dealing with data pipelines and data management
- Developing the advanced radio frequency interference excision and mitigation techniques to allow for the most sensitive observations
- Building a robust RFI detection system, with identification of known sources and flagging of unknown types of signals, anomalies
- Applying machine learning techniques to discover new astrophysics
- **Tools**: Docker, CWL, PostgreSQL, MySQL, Python, Git, Linux

SKA SA Digital Back-End
Cape Town, SA
DIGITAL SIGNAL PROCESSING ENGINEER — *March 2015 - Sep 2016*
- Architecting the system and designed algorithms in MATLAB with domain expertise in DSP and radio astronomy
- Experience in digital communications protocols and networking on high-speed (100GGbE/S) lab equipment in data center
- Developed on large Xilinx FPGAs
- Documentation generation: requirements, design, interface and test specifications
- **Tools**: Matlab/Simulink, Core9, Python, Git, Linux

Science and Technology Facilities Council RAL Space
Oxford, UK
RF MICROWAVE ENGINEER — *Sep 2010 - May 2011*
- Designed, fabricated and created an assembly for broadband LNA
- verified components performance characteristics and link budget analysis
- **Tools**: HFSS, ADS, Windows

Science and Technology Facilities Council ISIS
Oxford, UK
AUTOMATION ENGINEER — *Sep 2009 - Aug 2010*
- Designed and built control software to support and automate muon experiments
- Provided programming, troubleshooting, testing/measurement and technical support
- **Tools**: LabView, National Instrument DAQ systems, Windows

Projects

Transients and Pulsars with MeerKAT
Cape Town, SA
TRAPUM http://www.trapum.org/ — *2015 - PRESENT*
- Processing Working Group: covers development and operation of processing infrastructure for TRAPUM.
- Data Working Group: Covers archiving, storage, accessibility, traceability.

IBM Research - Africa
Cape Town, SA
COGNITIVE SYSTEMS http://www.research.ibm.com/labs/africa/ — *2016 - PRESENT*
- Joint patent: Identification of RFI
- Use of machine learning to improve the computational infrastructure of the MeerKAT radio telescope.

Breakthrough Initiatives
Cape Town, SA
SETI BREAKTHROUGH LISTEN https://breakthroughinitiatives.org/initiative/1 — *2016 - PRESENT*
- Machine learning and big data techniques to distinguish between terrestrial sources of interference, and potential extraterrestrial signals.

Education

PhD, Radio Astronomy
Manchester, UK
MANCHESTER UNIVERSITY — *2011 - 2015*
- **Title**: High-time resolution astrophysics using digital beamforming

BEng in Electronic Engineering
Birmingham, UK
ASTON UNIVERSITY — *2007 - 2011*
- First Class with placement year