

MONDAY – SESSION 1

ASTROPHYSICAL DATA VISUALIZATION FROM LINE PLOTS TO AUGMENTED AND VIRTUAL REALITY

Invited and Contributed

08.40 – 09.00 Amitabh Varshney (Univ. of Maryland)

Astronomy-inspired Visual Computing

09.00 – 09.30 Brian Kent (NRAO)

3D Data Visualization in Astrophysics

09.30 – 09.45 Christopher Zapart (NAOJ)

An introduction to FITSWebQL

09.45 – 10.00 Angus Comrie (Univ. of Cape Town)

An HDF5 Schema for SKA Scale Image Cube Visualization

10.00 – 10.15 Emanuel Ramirez (Quasar Science Resources)

Analysis of Astronomical Data using VR: the Gaia catalogue in 3D

Focus Demo

10.45 – 11.15 Alexandar Mechev (Leiden University)

Building LOFAR As A Service: Processing Petabytes with just a click

MONDAY – SESSION 2

ALGORITHMS

Invited and Contributed

11.15 – 11.45 James Bosch (Princeton U./LSST)

An Overview of the LSST Image Processing Pipelines

11.45 – 12.00 Amanda Kepley (NRAO)

Auto-multithresh: A General Purpose Automated Masking Algorithm for Clean

12.00 – 12.15 Daniele Tavagnacco (INAF-OATs)

Performance-related aspects in the Big Data Astronomy Era: architects in software optimization

12.15 – 12.30 Lightning Talks

MONDAY – SESSION 3

QUALITY ASSURANCE OF SCIENCE DATA

Invited and Contributed

14.00 – 14.15 Nadia Dencheva (STScI)

GWCS - A General Approach to Astronomical World Coordinates

14.15 – 14.30 Cheuk Yin Lam (Liverpool Telescope)

Data-Driven Pixelisation with Voronoi Tessellation

14.30 – 15.00 Ray Plante (NIST)

The BagIt Packaging Standard for Interoperability and Preservation

Focus Demo

15.30 – 16.00 Michael Raddick (Johns Hopkins U.)

SciServer: Collaborative data-driven science

MONDAY – SESSION 4

QUALITY ASSURANCE OF SCIENCE DATA (CONTINUED)

Invited and Contributed

16.00 – 16.15 Rosa Diaz (STScI)

Adding Science Validation to the JWST Calibration Pipeline.

16.15 – 16.30 Gilles Landais (CDS/ObAS)

Quality assurance in the ingestion of data into the CDS VizieR catalogue and data services

16.30 – 16.45 Franois Bonnarel (CDS/ObAS)

ProvTAP: A TAP service for providing IVOA provenance metadata

16.45 – 17.00 Lightning Talks

Birds of Feather

SALON AB

17.15 – 18.15 Jessica Mink (CfA)

Data Formats

18.15 – 19.15 August Muench (AAS)

Data Citation: from Archives to Science Platforms

SALON G

17.15 – 18.15 Eric Tollerud (STScI)

Open Source/Development Software Projects and Large Organizations/Missions: Recommendations and Challenges

18.15 – 19.15 Kai Polsterer (HITS)

Beginners Guide to Machine Learning in Astronomy

TUESDAY – SESSION 5

DATABASES AND ARCHIVES: CHALLENGES AND SOLUTIONS IN THE BIG DATA ERA

Invited and Contributed

09.00 – 09.30 Felix Stoehr (ESO/ALMA)

Astronomical archives: Serving up the Universe

09.30 – 09.45 Clara Brasseur (STScI)

AstroCut: A cutout service for TESS full-frame image sets

09.45 – 10.00 Petar Zecevic (Univ. of Zagreb)

AXS: Making end-user petascale analyses possible, scalable, and usable

10.00 – 10.15 Nicolas Buchschacher (Univ. of Geneva)

No-SQL databases: An efficient way to store and query heterogeneous astronomical data in DACE.

Focus Demo

10.45 – 11.15 Emmanuel Joliet (IPAC/Caltech)

Visualization in IRSA Services using Firefly

TUESDAY – SESSION 6

DATA SCIENCE: WORKFLOWS, HARDWARE, SOFTWARE, HUMANWARE

Invited and Contributed

11.15 – 11.45 Kirk Borne (Booz Allen Hamilton)

Massive Data Exploration in Astronomy: What Does Cognitive Have To Do With It?

11.45 – 12.00 Ignacio Toledo (Joint ALMA Observatory)

Data Science =! Software Engineering. Exploring a workflow for ALMA operations.

12.00 – 12.15 Takeshi Nakazato (NAOJ)

New Synthesis Imaging Tool for ALMA based on the Sparse Modeling

12.15 – 12.30 Lightning Talks

TUESDAY – SESSION 7

MACHINE LEARNING IN ASTRONOMY

Invited and Contributed

14.00 – 14.30 Maggie Lieu (ESA)

Deep learning of astronomical features with big data.

14.30 – 14.45 Megan Ansdell (UC Berkeley)

Automatic Classification of Planet Candidates using Deep Learning

14.45 – 15.00 Bojan Nikolic (Univ. of Cambridge)

Acceleration of Non-Linear Minimisation with PyTorch

Focus Demo

15.30 – 16.00 John Good (Caltech/IPAC-NExScI)

Image Processing in Python With Montage

TUESDAY – SESSION 8

MULTI-MESSENGER ASTRONOMY

Invited and Contributed

16.00 – 16.15 Sankalp Gilda (Carnegie Mellon University)

Importance of Feature Selection in ML models

16.15 – 16.30 Cong Dai (Beijing Normal University)

TBD

16.30 – 17.00 Erik Kuulkers (European Space Agency)

Coordinating observations among ground and space-based telescopes in the multi-messenger era

Birds of Feather

SALON AB

17.15 – 18.15 Simon O’Toole (AAO-MQ)

How do you get the most out of your teams?

SALON G

17.15 – 18.15 Peter Shawhan (Univ. of Maryland)

Data analysis challenges for multi-messenger astrophysics

WEDNESDAY – SESSION 9

DATABASES AND ARCHIVES (CONTINUED)

Invited and Contributed

09.00 – 09.15 Beatriz Martinez (Rhea Systems S.A.)

Data-driven Space Science at ESA Science Data Centre

09.15 – 09.30 Simon O'Toole (AAO-MQ)

Bringing together the Australian sky - coordination and interoperability challenges of the All-Sky Virtual Observatory

09.30 – 09.45 Juan Gonzalez-Nuñez (European Space Agency)

Driving Gaia Science from the ESA Archive: DR2 to DR3

09.45 – 10.00 Sarah Graves (East Asian Observatory)

Harnessing the power of archival data to increase scientific output: the JCMT experience.

10.00 – 10.15 Alice Allen (Astrophysics Source Code Libr)

Toward common solutions for data access, discovery and interoperability

Focus Demo

10.45 – 11.15 Karan Vahi (Pegasus Team - USC/ISI)

Workflows Management using Pegasus

WEDNESDAY – SESSION 10

TIME DOMAIN ASTRONOMY

Invited and Contributed

11.15 – 11.30 Hackathon Prizewinner

11.30 – 12.00 Ada Nebot (CDS/ObAS)

Data challenges of the VO in Time Domain Astronomy

12.00 – 12.15 Mario Juric (Univ. of Washington)

The ZTF Alert Stream: Lessons from the first six months of operating an LSST precursor

12.15 – 12.30 Lightning Talks

WEDNESDAY – SESSION 11

SOFTWARE FOR SOLAR SYSTEM ASTRONOMY

Invited and Contributed

14.00 – 14.30 Matthew Holman (CfA)

The Minor Planet Center Data Processing System

14.30 – 14.45 Elena Racero (ESAC - Serco)

ESASky: A New Window for Solar System Data Exploration

14.45 – 15.00 Anne Raugh (Univ. of Maryland)

The PDS Approach to Science Data Quality Assurance

WEDNESDAY – SESSION 12

SCIENCE PLATFORMS: TOOLS FOR DATA DISCOVERY AND ANALYSIS FROM DIFFERENT ANGLES

Invited and Contributed

16.00 – 16.30 Ivelina Momcheva (STScI)

Hubble in the Cloud: A Prototype of a Science Platform at STScI

16.30 – 16.45 Michael Fitzpatrick (NOAO)

The NOAO Data Lab: Design, Capabilities and Community Development

16.45 – 17.00 Tom Donaldson (STScI)

Astropy and the Virtual Observatory

Birds of Feather

SALON AB

17.15 – 18.15 Alice Allen (Astrophysics Source Code Libr)

Unconference Session: I want to talk about...

THURSDAY – SESSION 13

DEVOPS PRACTICES IN ASTRONOMY SOFTWARE

Invited and Contributed

09.00 – 09.30 Rocio Guerra Noguero (European Space Agency)

DevOps: the perfect ally for Science Operations for a large and distributed astronomy project.

09.30 – 09.45 Marcel Loose (ASTRON)

Agile and DevOps from the trenches at ASTRON

09.45 – 10.00 Jeffrey Smith (SETI Institute)

Lilith: A Versatile Instrument and All-Sky Simulator for use with Space-Based Astrophysics Observatories

10.00 – 10.15 Malik Olivier Boussejra (Keio Univ.)

aflak: Pluggable Visual Programming Environment with Quick Feedback Loop Tuned for Multi-Spectral Astrophysical Observations

THURSDAY – SESSION 14

MANAGEMENT OF LARGE SCIENCE PROJECTS

Invited and Contributed

11.15 – 11.45 Michael Wise (ASTRON)

Establishing the SKA Regional Centre Network: Mesh Management and Culture Change

11.45 – 12.00 Anastasia Alexov (STScI)

Hit the Ground Running: Data Management for JWST

12.00 – 12.15 Maurizio Tomasi (Univ. degli Studi di Milano)

Towards new solutions for scientific computing: the case of Julia

12.15 – 12.30 BOF Lightning Summaries