Rubin Observatory

Algorithms Workshop

Leanne Guy
Data Management Scientist

17-19 March 2020
Virtual/Remote
The aim of this workshop is to provide a forum for the presentation of the algorithmic challenges faced by LSST image processing, and to solicit feedback and ideas as to how the Rubin data products can best meet the scientific needs of the community.
Workshop Goals

1. **Communicate** the strategy for further development of Rubin Obs. image processing algorithms to stakeholders, seek their input to it, and hear any ideas they have about ramifications for science, or other approaches that maybe should be considered.

2. **Ensure** that the choice of Rubin Obs. image processing algorithms reflects the current state of the art.

3. **Demonstrate** the current performance of Rubin Obs. image processing pipelines, based on pre-cursor data, to the community.

4. **Document** the Rubin Obs. algorithmic strategy for image processing, describe what Rubin Observatory expects to deliver by the end of construction, and outline what further improvements should be prioritized during the first few years of operations.
Changes for the virtual workshop

- The original agenda for the in-person meeting included a lot of free and unconference time to foster in-person interactive exploration and discussion. This has been diminished by moving to an all-virtual workshop.

- We are plan to organize follow-up, focused meetings around defined topics emerging from this virtual workshop:
  - In-person at **Rubin Observatory (LSST) Project and Community Workshop (PCW)** 10 – 14 August 2020, Tucson AZ. All invited speakers have been invited to attend.
  - Smaller virtual follow-up discussions in the coming months before the PCW
Code of conduct

An inclusive, collaborative environment is necessary to support a diverse group of individuals as they contribute their best effort

- Be Kind
- Trust
- Respect
- Inclusive

Meeting Code of Conduct is on the [LSST2019 Webpage](#)

Report any issues to Leanne Guy: leanne-at-lsst.org

Please abide by the code of conduct
Science Organizing Committee

Colin Slater, Co-chair
Deputy DM
Subsystem Scientist
UW/Rubin Obs.

Jim Bosch
LSST Data Release
Production Science Lead,
Princeton/Rubin Obs

Robert Lupton
LSST Calibration and
Pipeline Scientist,
Princeton/Rubin Obs.

Leanne Guy, Chair
LSST Data Management
Scientist,
AURA/Rubin Obs.

Eric Bellm,
LSST Alert Production
Science Lead Scientist,
UW/Rubin Obs.

Željko Ivezijć,
LSST Deputy
Director & Project Scientist,
UW/Rubin Obs.
Local Organizing Committee

Michelle Poland
DM Administrative Assistant
AURA

Tammy Hojeibane
Events Coordinator
Department of Astrophysical Sciences, Princeton

Michael Strauss
Chair, Department of Astrophysical Sciences
Professor of Astrophysical Sciences
Princeton

And a big thank you to the Rubin Observatory Communications Team
Virtual meeting format

**Zoom:** The workshop is all-virtual ([Zoom URL](https://zoom.us)). All sessions will be recorded and made available without restriction after the workshop. [Full Zoom connection details](https://zoom.us).

**Moderators:** Leanne Guy, John Swinbank, Colin Slater

**Slack Channel:** #mtg-algorithms-workshop for announcements, moderation and discussion

**Twitter handle:** #RubinAlgosWS

**Participants drive:** contains agenda, Zoom connection details, all talks and session notes. Slides will be made available before the presentation (subject to change). Organized by day.

**Session notes:** A file for taking live notes is found in `<participants drive>/<day>/Algorithms Workshop Live Notes`. Moderators will note questions and responses; please feel free to contribute to these notes.
Virtual meeting format

**Sign in Early or on Time:** We have over 70 participants in this virtual meeting, scheduling will be challenging. Moderators will connect 15 mins before the start of the meeting.

**Microphones:** Moderators have control of your microphones, you will not be able to unmute.

**Clarification questions** during talks should be asked on slack. If someone else cannot answer the question, a moderator may interrupt the talk to allow the question to be asked.

**In-depth questions/discussion** will be taken at the end of each presentation. Please use Zoom ‘raise hand’ if you want to ask questions, a moderator will unmute you and ask you to speak when it is time. Adding your question to the #mtg-algorithms-workshop slack channel and/or the live session notes helps if some attendees missed the question.

**Zoom chat:** We will not be monitoring Zoom chat, please use #mtg-algorithms-workshop for all discussion/questions during the meeting.
Virtual meeting format

**Presenters:** When it is your time to present, a moderator will unmute you and turn on the 'spotlight video' Zoom function, which will set you as the primary active speaker for all participants in the meeting and recordings. The moderator will introduce you and confirm the time available for your presentation. Please make sure your camera is on and your face visible for this introduction. This helps to make this all-virtual meeting more personal. You can then begin sharing your slides and presenting. The slides on the shared screen will be recorded. An alarm will be played when you have 5 mins remaining.

*When speaking,* keep your points clear and concise and be aware of time lags.
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<th>Tuesday 17 March 2020</th>
<th>Wednesday 18 March 2020</th>
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<td>Introduction. Speaker: Leanne Guy</td>
<td>Invited talk: Gary B - Systematic effects in photometry and astrometry and lessons learnt from the DES</td>
<td>Invited talk: Konrad K - State of the art in Galaxy Photometry</td>
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<td>Introduction to the LSST Science Pipelines. Speaker: Yusra AlSayyad</td>
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<td>Project plans for background Estimation. Speaker: Yusra AlSayyad</td>
<td>Project plans for galaxy photometry and model fitting. Speaker: Jim Bosch &amp; Dan Taranu</td>
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<td>Project plans for ISR and the Atmosphere. Speaker: Robert Lupton</td>
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<td>Invited talk: Mike Jarvis - State of the art in PSF modelling</td>
<td>Project plans for photometric calibration. Speaker: Eli Rykoff</td>
<td>Invited talk: Erin Sheldon - Weak lensing</td>
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<td>Project plans for PSF estimation and modelling. Speaker: Josh Meyers</td>
<td>Project plans for astrometric calibration and stellar motion measurements. Speaker: Jim Bosch</td>
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<td>Project plans for deblending. Speaker: Fred Moolekamp</td>
<td>Invited talk: Gene Magnier - State of the art in difference imaging and lessons learnt from Pan-STARRS</td>
<td>Project plans for stellar crowded field processing. Speaker: Colin Slater</td>
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<td>Project plans for building and using coadds. Speaker: Jim Bosch</td>
<td>Project plans for difference imaging. Speaker: Eric Bellin</td>
<td>Project plans for DCR in templates. Speaker: Ian Sullivan</td>
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