WG attendants:

Steven Sourbron (Leeds), Ben Thomas (ULC),
Claudia Prieto (KCL), David Atkinson (UCL), Kris Thielemans (UCL), Evgueni Ovtchinnikov (STFC),
Edoardo Pasca (STFC)

Remote:
Andrew Reader (KCL), Julian Matthews (Manchester), Charalampos Tsoumpas (Leeds), Nikos Dikaios (Surrey)
Jeff Fessler (U Michigan), Ciprian Catana (MGH, Harvard)

Apologies received:
Jo Hajnal (KCL), Paul Matthews (Imperial)

Overview of past activities (Kris)

- Introductions
- Grant until 2020.
- Developer meetings still well attended. Poster at PSMR 2018, talk at SIAM; accepted posters at IEEE MIC 2018 (Palak and Richard Brown).
- Edo presented PSMR course feedback. n=6. 50% thought duration adequate; rest wanted longer course. Presented material seemed appropriate. Kris: overall went very well, Azure client useful to have. Edo: Found 10GB limit on VM in half a day; now made 30GB VM.
- Presence in other networks. Likely to have more interaction with CCPi than others.
- Data agreements. GE can open source info; Siemens still checking.

Exchanges (Julian)

- UCL exchange (Palak: Leeds). Signa IO. Report still pending.
- Johannes Mayer. 2 weeks UCL in August
- Ashley Gilman. UCL and Leeds. Extended visit.
- Kris: still have money.
- Julian: repeated details for proposing future researcher exchanges.

Software status for both CCP and Flagship (Evgueni/Kris)

- Summary of where we are (updates will be in SM).
- PET functionality: OSMAPOL, OSSPS, OSL with PLS (1.1.0), FBP2D (1.1.0). List mode processing (to sonograms).
- MR functionality: Fully sampled recon, GRAPPA, simple way to make gadgetron chains. Coil sensitivity and access to acq. and image params.
- Image algebra.
- Distribution mechanisms: CMake and SuperBuild, VM, Docker, Conda
    - Support for Ubuntu, OSX, Windows 10 natively (VS 2015).

- Kris: Flagship status.
    - SIRFReg – registration framework, head MoCo example, PLS recon, parametric image recon. Will come in the summer.

Software plan

Planned releases (Kris)

- Won't go through now given the audience has already agreed it.
- Showed roadmap on GitHub. Currently at 1.X.

Supported systems and consequences for Continuous Integration (Kris)

- Should we be more specific about supported systems?
  - Support Ubuntu 16.04 LTS with gcc. (Travis only supports 14.04).
  - OS X should use pip and minimise use of brew.
- MATLAB is problematic for conda.
- Steven: Do you have data on user platforms? Could then make informed choice.
- Kris: survey is good idea, let's do that.

Interaction with CCPi (Edo)

- Tomographic reconstruction
- Explore multi-channel recons in flagship.
- 2 python packages.
- Alignment with SIRF terminology.
- A number of new iterative algorithms for minimising cost functions. CPU + GPU regularisation functions; all multi-threaded.
- All in python. Could move to lower level language but not priority.

Mechanisms for incorporating user contributions (Kris)

- Reminder of discussion in previous SW meeting.
- 3 levels:
  - SIRF/superbuild
  - Contributions – some minimal curation.
  - Links
  - People might want their own DOI, in which case might need to revise and use separate repos + sub-projects.
  - Kris: need to think about this in a technical meeting.

Phantom sub-group

Overview and past activities (Julian)

- Aim to generate high-quality phantom data for novel algorithm development/evaluation.
- Had 2 t-cons. Number of useful ideas.
- Has not progressed since January.
  - Would be useful to have assistance from person with MR background.
- ACTION: No page on the website for phantom WG.

License (Kris)

- Should be as open as possible but acq. requires effort. Attribution is sensible.
- Julian: default position should be attribution. Any experiment requires effort. Should have mechanism such as DOI for citation.
- Kris: overview of 2 sets of licenses (broadly similar):
  - Creative Commons
  - Open Data Commons

- Database can have different license to data.
- Conclusion: recommend CC – BY SA 4.0 or more liberal.
- Data repositories:
  - TCIA (not useful for raw data)
  - MRIdata.org
  - zenodo

Zenodo (Ben)

- Zenodo community: will not currently accept patient data but will revisit.
- ACTION: create curation guidelines.

MRIdata.org (David)

- Targeted to raw data. No DOI. Supposedly Python API. Format conversion. 10GB limit currently.

SNMMI PET-MR Harmonization effort

- Presentation of Richard LaForest at SNMMI: PET reconstruction matching with NEMA IQ phantom. Didn't get impression that anything similar was being done on MR side.

Project lead

- Julian asked for another volunteer to help (especially MR side) or lead.
- Steven: would NPL be interested in this project, even leading it?

Future events

Planned journal publications (Evgueni + Kris)

- 1st SIRF paper – 50 years Computer Physics Comms. – Plan for Autumn.
- Flagship paper – Dynamic PET, MoCo and priors.

Hackathon (Edo)

- Items: SIRF 1.2, New algorithms, SWIG
- Will discuss in SW meeting.

MRhub (David)

- Collecting open source software.
- Each submission is reviewed.
- Should probably submit SIRF.

ISMRM 2019 (reproducible research group) (David)

- Possibly 20-minute "demo" of open-source software.

MIC meeting 2019 (Harry)

- Short course 2 days
- Joint with CCPi
- Need to know if CCPi will be involved ASAP. Relevant to NSS part of the conference.
- Synergistic multi-modal and multi-spectral image reconstruction: methods & software.
  - Would like to invite keynote speakers.
  - Conference abstract submission – could be a way forward.
  - Julian: need to make clear differentiation from main conference.

- o   Special issue – also good but would have to be to TRPMS.
- o   Need PET, CCPi and MR people to help drive forward.

Next Software Meeting
- 20th September in Leeds, 1-3pm.

Action items:
- STFC: Survey on user platforms and requirements
- Kris: Put user contributions (and DOI) on agenda of next SW Meeting (discuss in tcon before)
- Kris: talk to NPL about phantom project
- STFC + input from Julian: page on the website for phantom sub-group
- Julian+Kris: create guidelines for phantom data
- STFC: Submit SIRF to MRhub once OSX woes sorted. (v1.2)
- STFC: put next SW Meeting on web-page