



Science Meeting – Scientific Report

The scientific report (WORD or PDF file - maximum of seven A4 pages) should be submitted online within two months of the event. It will be published on the ESF website.

Proposal Title: GaiaViz

Application Reference N°: 4736

1) Summary

The key to the full exploitation of Gaia data, even beyond the core Gaia science cases, is to give astronomers the ability to easily manipulate and visualize a unique and gigantic data set of about 1 billion stars. Astronomers are not the first to be confronted with orders of magnitude increase in data volume and much can be learned already from other research areas dealing currently with the big data challenge.

The main goal of the workshop was to bring together astronomers, experts in data visualization, and researchers in other fields dealing with the visualization of large data bases and discuss how to tackle some of the challenging issues faced by Gaia data visualization.

2) Description of the scientific content of and discussions at the event

The program of the workshop was divided into four major themes, namely, Visualization in Astronomy, Visualization outside of Astronomy, Gaia status and preliminary Visualization efforts, and finally, Future Visualization Trends.

Although there was discussion time after each presentation, two large discussion blocks took place at the end of the first and second day. At the end of the first day we had a two hour discussion on “What can Astronomy visualization learn from other fields?”, moderated by Prof. T. Moller and Dr. H. Piringer. At the end of the second day, and because it was the “Gaia” day, we had a very lively two hour

discussion on “What is the Gaia Visualization Challenge?”, moderated by W. O’Mullane and X. Luri. This last discussion was very successful in pointing out the challenges the Gaia community faces and it was effectively the highlight of the workshop, as it captured the desired dialog between Visualization experts in and outside of Astronomy.

3) **Assessment of the results and impact of the event on the future directions of the field**

The workshop managed to reach its goal: bringing experts from two communities together around the Gaia visualization challenge. In brief, we had a very successful first Gaia archive data visualization workshop. This was a much needed workshop where 1) Visualization techniques from outside Astronomy needed to be reviewed in face of the challenges for Gaia archive exploitation, and 2) a frank and open discussion on Gaia archive data visualization, starting from the provocative point of view that there is perhaps no challenge at all.

Clearly there are important challenges ahead regarding Gaia data visualization, and it was obvious that the good work started during this workshop should continue in the near future. From the feedback by the workshop participants a similar workshop should take place every two years during the near future, to continue developing and validating the work done so far on the visualization of the Gaia data archive.

The workshop had a good visibility in the social network twitter, where one can take a look at a sort of “visual proceedings” from the highlights of the meeting. The 18 page twitter stream on the presentations and discussion of the workshop can be found on twitter under hashtag: **#gaiaviz**

<https://twitter.com/search?f=realtime&q=%23gaiaviz&src=typd>

Some examples of these 18 pages are attached to this document.

4) **Annexes 4a) and 4b): Programme of the meeting and full list of speakers and participants**

(Attached to this document, see next two pages)

GaiaViz Program - Vienna 9-11 July

Time	Speaker	Affiliation	Title
9 July			
Visualization in Astronomy			
9:30	Alves, Moitinho		Welcome
9:30-10:00	Alberto Krone-Martins	Lisbon	Overview of existing tools
10:00-10:30	Ugo Becciani	Catania	VISIVO
10:30-11:00	<i>Coffee break</i>		
11:00-11:30	Alyssa Goodman	Harvard	Visualizing the Milky Way across the spectrum
11:30-12:00	Werner Bengler	Innsbruck	Vish
	<i>Lunch</i>		
Visualization outside Astronomy			
13:30-14:15	Torsten Möller	Vienna	Visual tools for understanding multi-d parameter spaces
14:15-15:00	Harald Piringer	VRVIS Vienna	Visplore
15:00-15:30	Laurent Noel	UCLAN	Visualization in the game industry
15:30-16:00	<i>Coffee break</i>		
16:00-18:00	Discussion	<i>What can Astronomy viz learn from other fields? (Mod: Möller, Piringer)</i>	
10 July			
Gaia			
9:00-9:30	Timo Prusti	ESA	Gaia Mission and Status
9:30-10:00	Will O'Mullane	ESA	The Gaia IT Challenge
10:00-10:30	André Moitinho	Lisbon	Gaia CU9 Visualization plans
10:30-11:00	<i>Coffee break</i>		
11:00-11:45	Pierre Fernique	Strasbourg	Aladin and Gaia
11:45-12:30	Mark Taylor	Bristol	TOPCAT and Gaia
	<i>Lunch</i>		
14:00-14:30	Maarten Breddels	Groningen	WP985
14:30-15:00	Toni Sagristà Sellés	Heidelberg	Gaia Visualization and PR
15:00-15:20	Richard Hanson	Heidelberg	3D Galactic Extinction modeling
15:00-17:00	Discussion	<i>What is the Gaia Visualization Challenge? (Mod: O'Mullane, Luri)</i>	
19:00	Dinner		
11 July			
Future visualization trends			
9:30-10:00	George Djorgovski	Caltech	
10:00-10:30	Chris Beaumont	Harvard	
	<i>Coffee</i>		
	<i>End of workshop</i>		

Participants

Last name	First name	Affiliation
Alex	Bombrun	Tu-Dresden
Alonso-García	Javier	Pontificia Universidad Católica de Chile
Alves	João	Univ. Vienna
Alzate Trujillo	Jairo Andres	UNAM
Anders	Friedrich	Leibniz-Institut fuer Astrophysik Potsdam
Barache	Christophe	SYRTE/Observatoire de Paris
Beaumont	Chris	Harvard
Becciani	Ugo	Univ. Catania
Benger	Werner	Innsbruck
Breddels	Maarten	Groningen
Boch	Thomas	CDS, Observatoire de Strasbourg
Boudreault	Steve	Observatoire de Paris
Britavskiy	Nikolay	IAASARS
Cantat-Gaudin	Tristan	OAPD - INAF
Costigan	Gráinne	Leiden Observatory
de Teodoro	Pilar	ESAC
Dekany	Istvan	Pontificia Universidad Catolica de Chile
Djorgovski	George	Caltech
Faure	Carole	Observatoire Astronomique de Strasbourg
Fernandez	Jose	Observatory of Besançon
Fernique	Pierre	Observatoire Astronomique de Strasbourg
Forbrich	Jan	Univ. Vienna
Fu	Xiaoting	SISSA
Garavito-Camargo	Juan Nicolas	Universidad de los Andes
Goodman	Alyssa	Harvard
Hacar	Alvaro	Univ. Vienna
Hanson	Richard	MPIA Heidelberg
Helmi	Amina	Kapteyn Institute
Hernandez	Jose	ESA
Isasi Parache	Yago	Freelance
Joliet	Emmanuel	ESA
Jordan	Stefan	Astronomisches Rechen-Institut, Zentrum für Astronomie
Lammers	Uwe	ESA
Landt	Hermine	Durham University
Leschinski	Kieran	Univ. Vienna
Manara	Carlo Felice	European Southern Observatory
Möller	Torsten	Univ. Vienna
Krone-Martins	Alberto	Univ. Lisbon
Kubiak	Karolina	Univ. Vienna
Meingast	Stefan	Univ. Vienna

Mejia	Annie	California Institute of Technology
Menard	Brice	Johns Hopkins University
Murphy	Simon	ARI, University of Heidelberg
Netopil	Martin	Masaryk University
Noel	Laurent	UCLAN
Nourbakhsh	Erfan	Institute for Research in Fundamental Sciences (IPM)
O'Mullane	Will	ESA
Piringer	Harald	VRVis Research Center
Prusti	Timo	ESA
Riener	Manuel	Univ. Vienna
Robin	Annie	Institut Utinam
Ruiz Dern	Laura	Observatoire de Paris - Meudon / GEPI
Rybizki	Jan	Zentrum fuer Astronomie der Universitaet Heidelberg
Sacco	Germano	INAF-Osservatorio Astrofisico di Arcetri
Sagristà Sellés	Toni	Heidelberg
Sancho Miranda	Maidier	University of Central Lancashire
Sesar	Branimir	Max Planck Institute for Astronomy
Shah	Ekta	Indian Institute of Technology Bombay
Shih	I Chun	GEPI, Observatoire de Paris
Taylor	Mark	University of Bristol
Lammers	Uwe	ESA
Vogt	Sandra	ESA
Weber	Conny	Univ. Vienna
Zeilinger	Werner	U. Vienna



David Montes @DMontesG · Jul 10
"Gaia data visualization workshop" Vienna, 9-11 July 2014 gaiaviz.univie.ac.at
[#gaiaviz](#)



Alyssa Goodman @aagie · Jul 10
Discussion is always better with "refreshments"! Thanks for that and [#gaiaviz](#),
[@joaoalves!](#)



4:32 PM - 10 Jul 2014 · Details



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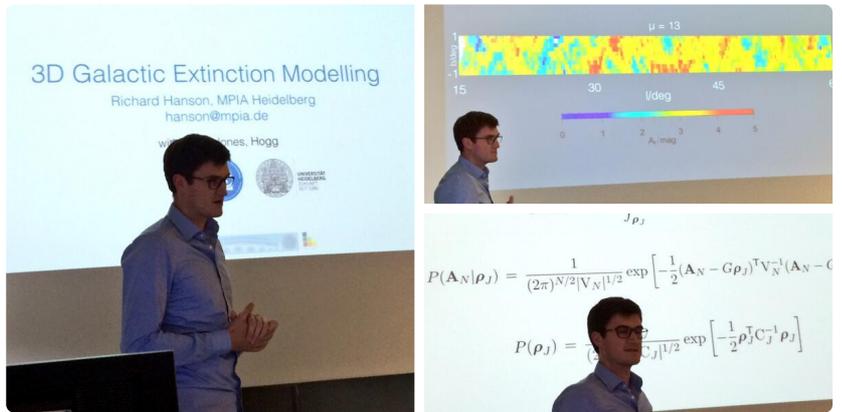
Reply to [@aagie](#)



Chris Beaumont @BeaumontChris · Jul 10
There are echoes of [@davidwhogg](#) at [#gaiaviz](#), taunting me because I don't understand gaussian processes



João Alves @joaoalves · Jul 10
Richard Hanson on 3D extinction with Gaia [#gaiaviz](#)



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Reply to [@joaoalves](#)

RETWEETS
2



2:33 PM - 10 Jul 2014 · Details

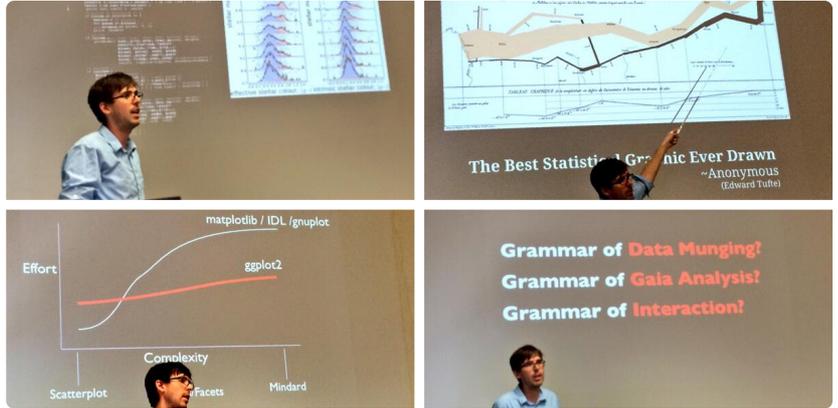


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Reply to @joaoalves



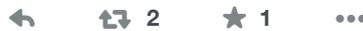
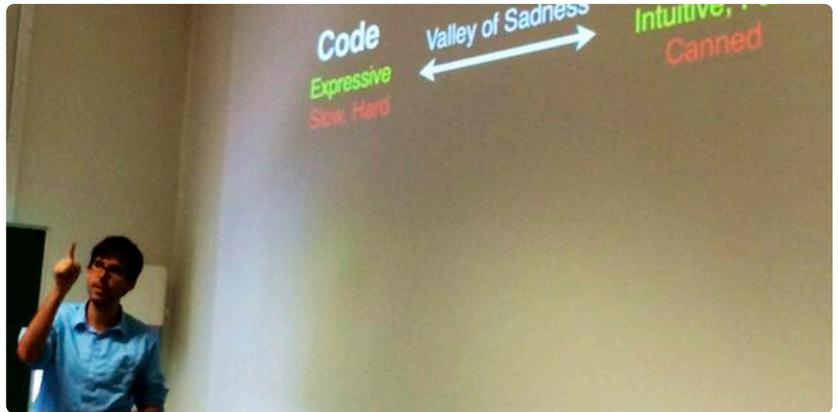
João Alves @joaoalves · Jul 10
Killer viz talk brewing... Chris Beaumont #gaiaviz



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Alyssa Goodman @aagie · Jul 10
@BeaumontChris Defines the "Valley of Sadness" between Code and GUIs at #GaiaViz.



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João Alves @joaoalves · Jul 10
Valley of sadness. #gaiaviz Chris Beaumont