

VisGuides: 2nd Workshop on the Creation, Curation, Critique and Conditioning of Principles and Guidelines in Visualization

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1 WORKSHOP ORGANIZATION DETAILS

Workshop Title: VisGuides: 2nd Workshop on the Creation, Curation, Critique and Conditioning of Principles and Guidelines in Visualization

Workshop co-chairs:

Alexandra Diehl (University of Konstanz, DE)
Benjamin Bach (University of Edinburgh, UK)
Alfie Abdul-Rahman (King's College London, UK)

Organization Committee:

Rita Borgo (King's College London, UK)
Nadia Boukhelifa (INRA, FR)
Mennatallah El-Assady (University of Konstanz, DE)
Kelly Gaither (University of Texas, USA)
Michael Sedlmair (Jacobs University Bremen, DE)

Advisory Board:

Min Chen (University of Oxford, UK)
Daniel Keim (University of Konstanz, DE)
Melanie Tory (Tableau Research, USA)

2 BACKGROUND

This workshop follows-up the ideas from the IEEE VIS 2016 Workshop on Creation, Curation, Critique and Conditioning of Principles and Guidelines in Visualization (C4PGV) (<http://c4pgv.swansea.ac.uk>).

A *visualization guideline* embodies wisdom advising a sound practice in creating a visualization image, designing a visual representation, or developing a visualization system. In the field of visualization, in order for visualization guidelines to play a pivotal role, it is necessary to develop mechanisms for curating, evaluating, critiquing, and refining guidelines in an open and transparent manner, to establish a culture of open, democratic, evidence-based discourse on the guidelines and enable broader participation in the discourse beyond the current scale of a few papers and blogs and to inspire researchers to study guidelines, including their evolution and applicability in different conditions using scientific methods, and when appropriate opportunities arise, transforming guidelines into quantitative laws and process management. Previous efforts were made in formalizing guidelines [2, 7, 9] using similar conceptualizations.

In many ways, guidelines are seen as a kind of doctrines. It will not be comfortable for many in the VIS community to critique some guidelines, especially those proposed by pioneers or extensively quoted in textbooks and papers. This is a common phenomenon in the advancement of the sciences. For example, Charles Darwin expressed his reluctance in making his view public as “It is as if one were confessing to a murder.” It was young Alfred Russel

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Wallace who prompted Darwin to break away from such reluctance and reshape the biology.

Guidelines in visualization come in very different forms and are not always formalized as such. For example, Tufte introduces the notion of *Data-Ink ratio* [10], the information seeking mantra [8] or the rainbow colormaps [1]. Other guidelines are manifested in textbooks [4–6, 11, 12] Beyond these, many studies propose, manifest, or discuss guidelines based on empirical research.

We propose *VisGuides* discussion platform, as a mechanism to foster these constructive discussions (see Figure 1). This forum is a platform for studying visualization using the methodology of grounded theory [3]. The qualitative data gathered using grounded theory will be used for coding later on. Any registered users can pose questions about guidelines, share their positive as well as negative experience about certain guidelines, reason about the successes, failures, and conflicts of guidelines, and refine the statements of specific guidelines and their working conditions.

Previous workshops and events concerned with visualization guidelines have been highly successful [2]—including the C4PGV workshop at IEEE VIS 2017 <http://c4pgv.swansea.ac.uk> and other theory-focused events and panels at other IEEE VIS venues. These previous outcomes included:

- An agreement on the need of more theoretical foundations for the visualization discipline.
- The construction of a solid basement taking concepts from older disciplines, such as mathematics, computer science, engineering science, psychology, medicine, and social sciences.
- An agreement on the view of visualization as a discipline build on human, technological, algorithmic, and social concepts that can also be incorporated for other mature disciplines.

3 GOALS AND MISSION

As a necessary next step, the goals for this second workshop will have a stronger focus on establishing a methodology to formalize visualization guidelines. It must be understood that any guidelines have an ambivalent and controversial character that allows them to be *formative* (in some cases) and at the same time *accept exceptions* (in some other cases). As empirical and design knowledge about data visualization grows, and as data visualization is becoming a more widespread activity and application, we need a democratic platform where we are able to propose, discuss, and study guidelines as scientific activities and where we can balance the formative nature of guidelines and their exceptions. To realize these goals, the workshop aims at:

- Collecting a **survey** of well-known guidelines from the presenters and the audience through discussion, examples, and submissions (see Section 4).
- Constructing an open and democratic **discussion** about principles, guidelines, recommendations, based on the presented evidence (including examples of their uses and misuses), critique (including revision and improvement) and conditioning (i.e., education, training, and deployment) compiling the lessons learned from the usage of those guidelines.

all categories ▾	Latest	New	Unread	Top	Categories	+ New Topic
Topic	Category	Users	Replies	Views	Activity	
The Blow Apart Effect	Bar Charts	B R	2	27	Oct '17	
Rainbow Colormap	Color	E	0	9	Oct '17	
The Lie Factor guideline by E. Tufte	Visual Design	V	0	11	Sep '17	
Data-Ink Ratio Principle, How to use it?	Theory	S	0	9	Sep '17	
Action without Interaction	Interaction	E	0	8	Sep '17	
The Correspondence Principle	Theory	S	0	11	Sep '17	
Welcome to VisGuT	Site Feedback		1	11	Sep '17	

Figure 1: A screenshot of VisGuides, a discussion platform that supports the creation, critique, and curation of visualization guidelines.

- Discussing ideas and proposals of **feasible approaches towards the formalization** of visualization guidelines, with an impact beyond the scientific visualization community. This is important in particular as more and more important visualization designs are created *outside* the scientific community. The visualization community must reinforce the efforts to publicize their study results.
- To raise questions about the ethical, practical, and technical implications of establishing guidelines for visualization.

4 TECHNICAL SCOPE

Our workshop will be supported by a web forum, VisGuides (visguides.dbvis.de, 1), with a comprehensive review of visualization guidelines. Before the workshop, we invite the visualization community to engage in discussions in the forum. We then will ask for the submission of papers describing their experience, the advantages, disadvantages, and the lessons learned. During the workshop, there will be short presentations on guidelines reports and position papers on innovative ideas, discourses, design concepts, requirement analysis, and work-in-progress in the context of principles and guidelines in visualization and visual analytics. The topics of these presentations may include but are not limited to the followings:

- Comparative analysis of several guidelines for a visual representation, requirements, and gap analysis of principles and guidelines for one or more visualization tasks (or application domains),
- Evidence-based critique of a principle or a guideline,
- Case studies of a principle in relation to a task, a visual design, and a group of users,
- Proposal of a new principle or a guideline, or a major revision of an existing one,
- Proposal of a mechanism for curating principles and guidelines,
- Proposal of a framework for critique of principles and guidelines,
- Proposal of a mechanism for disseminating and deployment of established principles and guidelines,
- Discourse on long-term sustainable mechanism for creation, curation, critique, and conditioning activities,
- Discourse on the relationships and transformations between principles and guidelines and other theoretical aspects, such as taxonomies, conceptual frameworks and models, and quantitative laws, and so forth.

As a possible submission template to the workshop, we are proposing the novel format of a *Guideline Report*:

- Title of the guideline that is proposed or discussed.
- Guideline description
- Background
- Supporting elements
 - Arguments (common sense)
 - Studies
 - Design examples
- Rejecting elements
 - Arguments (common sense)
 - Studies
 - Design examples
- Discussion
- Implications / Considerations
 - Ethical
 - Practical
 - Technical
 - ...
- Conclusions
- Summary-box
 - Title
 - Description
 - Supporting (max 3 bullet points)
 - Contra (max 3 bullet points)
 - Discussions (max 2 bullet points)

We believe that guideline reports (between 4-6 pages) will provide a simple but structured format to conduct research and discussions within and beyond the scientific community. The report format itself will be subject to discussion at the workshop (explained below).

5 ACTIVITIES AND REVIEW PROCESS

This workshop ideally would run full-day. Reducing the workshop to half-day would be possible but restricts discussion time. The workshop will open to all IEEE VIS attendees. We will accept short paper varying between two to four pages (excluding references). Submissions will be reviewed by an international program committee and selected contributions will be presented at the workshop in an interactive fashion with discussions led by experienced researchers from a steering committee of the workshop. Our goal for this particular workshop format is to bring interested people together and have an interactive atmosphere.

It is proposed that the workshop will have a one-stage review system:

Submissions: If the proposal should get accepted, we will send out a Call for Submissions through the VIS publicity team, a web-based online submission will open, and an international program committee (IPC) will be formed. The submission of the short papers will make use of the PCS (Precision Conference Solutions) or another (free) submission system such as Microsoft CMT. We expect around 25 submissions and would be able to accept about 12 for presentation.

Review. We also expect that most/all submissions will be relevant. The review process is thereby a process of prioritization. Given N short paper submissions, each submission will be read by three or more reviewers (IPC members). Each reviewer will get K submissions and will rank them by giving them a score between 1 and 5 (with 5 is the highest ranking). Additional written notes can be given wherever appropriate. The score 0 is also available for totally inappropriate submissions.

We expect that each reviewer will be assigned 4-6 submissions. If each reviewer will handle K submissions, there is a need for $3N/K$ reviewers. The workload of review is thus low. For example, if $N = 24$, $K = 4$, we will need 18 reviewers, and if $N = 30$, $K = 6$, we will need 15 reviewers.

The prioritization criteria include (i) relevance, (ii) potential originality and novelty, (iii) potential impact and importance, (iv) potential interest to the workshop attendees. IPC members will be selected from the InfoVis, VAST, and SciVis communities and will be invited in due course after the workshop is accepted. The reviews will also be handled using PCS or another (free) submission system such as Microsoft CMT.

The co-chairs then consider all the prioritization scores, as well as aggregated mean score for each submission, and classify submissions into three categories:

- (a) Accept for publication and presentation.
- (b) Accept for publication only.
- (c) Reject.

We anticipate to accept 12 short papers for publications and presentations (a), and about six short papers for online publications only (b).

Presentation. The 12 presentations will be divided in a two rounds. Each presentation will be of 10 minutes during the workshop. The Q&A discussions will be held for the six presentation in a plenary form at the end of each session (40 minutes).

Publications. All accepted short papers will be published online, accessible to the public, at a website dedicated to the workshop (C4PGV.dbvis.de). The online publication will be supported by social media means such as dedicated Tweeter feeds.

Participation. We hope that the workshop could receive around 24-30 short paper submissions. Assume that the review stage takes 50% of the submissions, the workshop will have 12 presentations. Based on a number of important visualization researchers and practitioners that have shown their interest as being part of the committees and the possibility to submit new ideas, we expect a large number of IEEE VIS attendees to show up and create a very interactive atmosphere during the discussions.

6 TIMELINE

- Call for submissions (sent out): May 20th, 2018
- Deadline for submission: July 22nd, 2018
- Notification of acceptance: August 24th, 2018 (or two weeks before VIS early-bird deadline)
- Workshop: October XX, 2018

7 TENTATIVE SCHEDULE AND REQUIREMENT FOR FACILITIES

The workshop will need a room for about 60-100 people with a podium and head table for a whole day. The usual AV equipment will be needed for the presentations. Based on 12 presentations and a panel discussion, we propose a one-day workshop with the following format (time schedule based on VIS 2017):

Session 1 Setting the Scene:

Chair: Benjamin Bach

Welcome: Benjamin Bach (15 minutes)

Keynote: 35+10 minutes

VisGuides Platform: A. Diehl, A. Abdul-Rahman (30+10 mins)

10:10-10:30 Break

Session 2 Early Experience of using VisGuides:

Chair: Rita Borgo

6 presentations: (10 minutes each), total 60 minutes

Panel Q&A: Speakers as panelists (40 minutes)

12:10-14:00 Break

Session 3 Creation, Curation, Critique and Conditioning:

Chair: Mennatallah El-Assady

6 presentations: (10 minutes each), total 60 minutes

Panel Q&A: Speakers as panelists (40 minutes)

15:40-16:15 Break

Session 4 VisGuides: What Next?:

Panel Chair: Michael Sedlmair

Panel Discussion: Panelists - tbd (50 minutes)

Session 5 Closing:

Chair: Alexandra Diehl

Capstone: 35+10 minutes

Closing: 5 minutes

Note. Sessions close to Lunch and Coffee Breaks have been purposely kept slightly looser, time-wise, than others to counteract for the possibility of running overtime.

For a half-day workshop, we will adapt the program based on the morning schedule, with slightly shorter opening and closing activities. The review process will be modified to accept six submission for presentation, while no changes are required for online publication.

While our submissions numbers might appear to be ambitious, we have considered a scenario where less submissions than expected are received. Alternatives include, but are not limited to, the introduction of: break-out sessions, theme-focused discussions groups.

8 ORGANIZATION

The organization consists of workshop co-chairs, organization committee, advisory board, and an international program committee. All main organizers have confirmed their involvement in the

workshop organization, and have contributed to the proposal of the workshop. The role of the organization committee is to (i) ensure that a high-quality, well-balanced program is organized and presented for the workshop, and (ii) advise on the selection and review of paper submissions. The functions of the advisory board include (i) to advise on important directions (e.g., publication and future events), (ii) to handle unexpected issues that workshop co-chairs are not suitable to deal with, and (iii) to step in for workshop co-chairs in special circumstances. The members of the IPC will be invited after the proposal has been accepted.

Workshop co-chairs:

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Benjamin Bach (University of Edinburgh, UK)
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Advisory Board:

Min Chen (University of Oxford, UK)
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Melanie Tory (Tableau Research, USA)

International Program Committee:

This will be established by the program co-chairs if this application is approved.

9 BRIEF RESUME OF ORGANIZERS

Alexandra Diehl is a Research Associate at the Data Analysis and Visualization Chair, University of Konstanz. Alexandra received her PhD in computer science from the University of Buenos Aires in 2016. Her doctoral studies focused on geospatial visual analytics. Currently her research studies uncertainty through the visual analytics process. Other areas of interest include Earth Sciences and Scientific Visualization. Alexandra successfully organized meet-ups at IEEE VIS 2017, and is now local organizer of BDVA 2018 (International Symposium on Big Data Visual and Immersive Analytics).

Benjamin Bach is an Assistant Professor in Design Informatics and Visualization at the University of Edinburgh. His research investigates interactive information visualization interfaces to help people explore, communicate, and understand data. Working in an interdisciplinary environment between the College of Art and the School of Informatics, significant importance has been created around teaching and advising on visualization. Before joining the University of Edinburgh in 2017, Benjamin worked as a postdoc at Harvard University, Monash University, as well as the Microsoft-Research Inria Joint Centre. He obtained his PhD in 2014 from the Université Paris Sud. Besides local

workshops and symposia Benjamin has been co-organizer of two past workshops on Immersive Analytics at IEEE VIS 2017 and ACM ITS (<http://immersiveanalytics.net>), as well as the Discovery Jam workshop at IEEE VIS 2017.

Alfie Abdul-Rahman is a Research Associate at Oxford University and will be joining King's College London in March 2018 as a Lecturer. She has been involved with the Imagery Lenses for Visualizing Text Corpora and Commonplace Cultures: Mining Shared Passages in the 18th Century using Sequence Alignment and Visual Analytics, developing web-based visualization tools for humanities scholars, such as Poem Viewer and ViTA: Visualization for Text Alignment. She received her PhD degree in computer science, with specialization on physically-based rendering and algebraic manipulation of volume models, from Swansea University in 2007. Before joining Oxford, she worked as a Research Engineer in HP Labs Bristol on document engineering, and then as a software developer in London, working on multi-format publishing. Her research interests include visualization, computer graphics, and human-computer interaction.

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