EuroVis 2025

27th Eurographics Conference on Visualization 2025

Luxembourg City, Luxembourg
June 2 – 6, 2025

Organized by

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Preface

EuroVis 2025, the Eurographics Conference on Visualization was held in Luxembourg City, Luxembourg from June 2 to 6, 2025.

Since its beginnings in 1990, EuroVis has evolved alongside the field it represents. What started as the *Eurographics Workshop on Visualization in Scientific Computing* later became *VisSym* from 1999 to 2005. In 2005, it took on the name we know today — *EuroVis*, officially the *Eurographics / IEEE VGTC Conference on Visualization* — a title that reflects its broad scope across data visualization.

Each year, EuroVis brings together researchers and practitioners exploring how we see and understand data — ranging from complex spatial forms like volumes and vector fields to abstract information such as graphs, texts, and high-dimensional data. The conference dives into theory, hardware acceleration, visual perception, interaction, user studies, and countless real-world applications. Though always hosted in Europe, EuroVis is a truly global event. The 2025 Full Papers International Program Committee (IPC) alone featured 88 experts from across Europe, North America, Asia, and the Middle East. The research, too, reflects this diversity — pushing the boundaries of visualization from all corners of the world.

The proceedings of EuroVis are freely accessible during the conference week, most of them are published open access. Full papers appear as a special issue of the Computer Graphics Forum journal. In 2025, EuroVis received 200 abstract submissions, leading to 167 full paper submissions. With the exception of one desk-rejected paper, all submissions underwent the full peer-review process. Notably, the number of submissions for EuroVis 2025 saw a significant 25% increase compared to 2024 — highlighting the growing momentum and interest in the visualization community.

In 2025, authors had the option to submit their papers anonymously, although members of the IPC could still view author identities within the submission system. The review process once again employed a structured review form, but no rebuttal phase was included. Each submission received four to five reviews in the first round — two from IPC members and two or three from external experts selected by them. Reviewers then engaged in an online discussion to assess the papers and provided a recommendation of conditional acceptance or rejection to the Full Papers Chairs. Based on these recommendations, the Chairs assigned one of three outcomes to each submission: conditional acceptance, recommendation for fast-track consideration in the journal Computer Graphics Forum, or rejection. A total of 46 papers received conditional acceptance and proceeded to a second review round after revisions by the authors. All 46 papers were ultimately accepted, resulting in a final acceptance rate of 27.5%. Additionally, five papers were invited to undergo revisions for potential publication through the *Computer Graphics Forum* fast-track process.

The 46 accepted papers were organized into 13 engaging sessions in the full paper program, including a dedicated awards session, covering a wide range of current topics in visualization. To further enrich the program, the Full Papers Chairs— working in collaboration with the Editors-in-Chief of *IEEE Transactions on Visualization and Computer Graphics* (Han-Wei Shen, Ross Maciejewski) and *Computer Graphics Forum* (Pierre Alliez, Rüdiger Westermann, Michael Wimmer)— invited a selection of recently published journal papers. These contributions added further depth and breadth to the paper sessions. Additionally, in partnership with *IEEE Computer Graphics and Applications* (Editors-in-Chief Pak Chung Wong), two special sessions were curated to showcase more recent journal publications. We were deeply grateful to everyone involved in the invitation process, and especially to the authors who accepted the invitations, for helping to create a vibrant and diverse EuroVis 2025 program.

EuroVis honors outstanding contributions each year through its Best Paper Awards. For the 2025 edition, two of the three Full Papers Co-Chairs handled the selection process to account for conflicts of interest. They nominated six papers based on review scores, reviewer discussions, and recommendations from both the IPC and external reviewers. A dedicated Best Paper Committee — comprising Ingrid Hotz, Çağatay Türkay, and Michael Burch —

carefully evaluated the finalists and selected one paper for the Best Paper Award, along with two papers receiving Honorable Mentions. These recognitions celebrate excellence in research and highlight some of the most impactful work presented at the conference.

The Best Paper Award this year went to "NODKANT: Exploring Constructive Network Physicalization" by *Daniel Pahr, Sara Di Bartolomeo, Henry Ehlers, Velitchko Filipov, Christina Stoiber, Wolfgang Aigner, Hsiang-Yun Wu, and Renata Georgia Raidou.* The Best Paper Committee stated: *"This paper presents a compelling, well-executed, and thoughtfully designed example of constructive physicalization. The concept is novel, with a clear structure, well-defined research questions, and evaluation. The study reveals valuable insights into the potential of user engagement with data physicalization. In summary, the paper makes a strong contribution to the data physicalization by effectively bridging design, interaction, and cognition."*

One equal Honorable Mention was awarded to *"Optimizing Staircase Motifs in Biofabric Network Layouts"* by *Sara Di Bartolomeo, Markus Wallinger, and Martin Nöllenburg.* The Best Paper Committee stated: *"The paper is well-written and researches a distinct and novel alternative to the node-link and matrix visualizations for network data. Algorithmic and visual details are of high quality and the experimental results are convincing."*

Another equal Honorable Mention is awarded to *"Gridded Visualization of Statistical Trees for High-Dimensional Multipartite Data in Systems Genetics"* by *Jane Adams, Robyn Ball, Jason Bubier, Elissa J. Chesler, Melanie Tory, and Michelle Borkin.* The Best Paper Committee stated: *"This highly detailed design study reports on a timely visualisation approach called "Gridded Trees" that unravels complex multi-omic interactions by enabling the analysis of both the raw data and hierarchical data structures derived from their statistical analysis. An outstanding strength of this work is how the design process is rigorously conducted and reported. Building on an observational period, pilot studies, focus groups and a cooperative development phase, Gridded Trees elegantly puts together several statistical analysis plots to enhance hierarchical data analysis. The tool has been adopted by systems genetics researchers studying on neurogenetics of addiction—a rare, impressive achievement that demonstrates the strength and direct impact of the proposed approach."*

In recognition of the importance of the review process, this year the Full Papers Chairs again recognized the best EuroVis full paper reviewers, through a Best Reviewer Award. The Full Papers Chairs analyzed all the reviews submitted to the Full Papers program (4-5 reviews per submission, 167 submissions entered in the review process) as well as the reviewer discussion for each submission. They then compiled a list of outstanding reviewers, using as criteria the quality of submitted reviews, and the reviewer participation into paper discussions. The Chairs also considered nominations entered by the reviewer pool. Each Chair did not nominate any of their conflicts of interest. After discussion, the Chairs selected by consensus a set of four reviewers, then anonymized their corresponding review samples. A Best Reviewer Committee formed by Marco Angelini, Jo Wood, and Tobias Isenberg reviewed the anonymized samples, discussed the nominations, and selected a Best Reviewer award and an Honourable Mention.

The Best Reviewer award went to Kostiantyn Kucher. The committee stated: *"We want to recognise Kostiantyn Kucher as the Best Reviewer for EuroVis 2025. Kostiantyn demonstrated a high commitment to producing high-quality reviews with specific feedback, detailed comments, deep analyses, and personal curiosity. Such reviews prove useful for coordinators in granting a correct evaluation and as a valuable resource for authors in receiving feedback for improving their work. Tied with a consistent quality across all reviews, a strong connection to literature, and an open-minded and respectful tone, this represents a great example of how a reviewer should behave."*

In addition, one Reviewer Honourable Mention was selected by the committee, awarded to Søren Knudsen: *"In a pool of high-quality reviews that the panel was asked to consider, we wanted to recognise an outstanding review by Søren Knudsen in representing the developmental benefit of the peer review process. Søren's review showed deep engagement with the paper, taking great care to provide constructive and actionable feedback that would have been a great help to the paper authors. We particularly valued how Søren's feedback discussed the subject of the*

submission with authors, emphasising its positive aspects, adding pointers to help the authors in their continued work, as well as providing numerous suggestions for specific improvements to implement. The panel was impressed by the way Søren provided targeted links to literature, guiding them to consider how it might shape the authors' ongoing work."

We would like to thank everyone who has made the event possible. We thank the authors of all submissions for providing us with such a broad range of exciting work to select from. We thank the International Program Committee for their work in identifying external reviewers and guiding the review process. We thank the reviewers for their work in selecting the papers and providing feedback to authors. We thank the chairs of the other conference tracks for their help in making EuroVis 2025 such a successful event: Short Papers Chairs Alvitta Ottley, Christian Tominski, Mennatallah El-Assady; the STAR Chairs Andreas Kerren, Marco Angelini, Christoph Garth; the Poster Chairs Kostiantyn Kucher, Alexandra Diehl, Nicolas Médoc; the Panels and Tutorials Chairs Julien Tierny, Michael Sedlmair, Tobias Isenberg, the Workshop Chairs Alfie Abdul-Rahman, Guido Reina, and all the chairs of the co-located workshops; the Student Volunteers Chair Eloi Durant, and the Education Chairs Robert S Laramee, Carolina Nobre, Jillian Aurisano. We especially thank Publication Chair Stefanie Behnke for her great work in preparing the publications, and James Stewart for his swift assistance with the review software system. We also thank the EuroVis Steering Committee for giving the Paper Chairs their full support and help: Barbora Kozlikova, Pere-Pau Vázquez, Silvia Miksch, Tatiana von Landesberger, Heike Leitte, Rita Borgo, and James P. Ahrens.

We also thank the General Chair Mohammad Ghoniem for working on the program and the local scientific team: Fintan McGee, Roderick McCall, and Valérie Maquil. Their efforts were invaluable in creating the full conference, a highly successful event for researchers, authors, students, all interested and the community at large.

Technical conferences like EuroVis play a vital role in uniting the research community to exchange ideas and foster collaboration. We deeply value the spirit of shared knowledge and collegiality that these gatherings promote. We hope that you enjoyed the conference and found inspiration in our exciting program of scientific papers.

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Full Papers Chairs and Guest Editors

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Keynote Talk

On Notation

Pat Hanrahan
Canon Professor of Computer Science and Electrical Engineering Emeritus | Stanford University (USA)

Abstract

This talk is a follow-on to my Eurovis 2009 Keynote titled "Systems of Thought". A system of thought is a set of concepts and representations that help us efficiently structure our thinking.

In that talk I described different linguistic, mathematical, computational, and visual representations; and compared their advantages and disadvantages. The best representations are easy to understand and easy to manipulate.

Expert problem solvers know how to pick the best representations for solving the problem at hand, and often use multiple representations synergistically.

In this talk I will drill down into "notation". I will examine mathematical notation and compare it to the notation used in programming languages. Mathematical notation is expressive, but imprecise. Programming languages utilize a precise notation, but it is very limited. Domain specific languages should include both a rich semantics and an expressive notation.

The title of this talk was inspired by Ken Iverson's Turing Award Lecture and paper with the same title.

Short Biography

Pat Hanrahan is the Canon Professor of Computer Science and Electrical Engineering Emeritus at Stanford University. As a founding employee at Pixar Animation Studios, Hanrahan led the design of RenderMan.

Hanrahan served as a co-founder and CTO of Tableau Software. He has received three Academy Awards for Science and Technology, the SIGGRAPH Computer Graphics Achievement Award, the SIGGRAPH Stephen A. Coons Award, and the IEEE Visualization Career Award. He is a member of the National Academy of Engineering and the American Academy of Arts and Sciences. In 2019, he received the ACM A. M. Turing Award.

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Keynote Talk

Data Physicalisation and Sensification - How Explorative Research Led to a Design Vocabulary for Physicalisation

Eva Hornecker
Professor in Human-Computer Interaction | Bauhaus-Universität Weimar (Germany)

Abstract

Representing data in other than just visual form appears to foster higher affective engagement, which motivates research on Data Physicalisation and Sensification. My team has explored this both via creative designerly approaches and user studies, in teaching and research, aiming to understand this novel design space and its implications for data meaning-making.

In my talk, I will discuss how our work, experiences made ,and inspirations from the works of others informed development of a design vocabulary for Physicalisation.

In trying to systematize the design space of Physicalisation, we realized that finding physical analogues to InfoViz's visual variables is not enough. This is partially due to Physicalisation's embodied and situated nature.

There are also new opportunities, when sensifications only reveal the data IN direct interaction via kinesthetic perception. My talk aims to give insight into our thinking and to illustrate some of these central points.

Short Biography

Eva Hornecker is a Professor in Human-Computer Interaction at Bauhaus-Universität Weimar, Germany. Her work is located at the intersection between technology, design, and the social sciences. Before coming to Weimar in 2013, she taught and researched at the University of Strathclyde, Scotland and the Austrian TU Vienna and has been a PostDoc at the Open University, UK, the University of Sussex, UK, and at HitLabNZ in New Zealand, following her PhD at the University of Bremen, Germany.

She co-founded the ACM TEI conference and introduced a framework on tangible and embodied interaction that is widely received. Nowadays, her research goes beyond tangible interfaces, but continues to focus on anything that is not classical desktop computing, but embodied, material, or embedded in physical environments - which includes data physicalisation.

Her group utilizes mainly qualitative methods of enquiry and Research Through Design approaches. She is a Distinguished Member of the ACM for her contributions to the TEI community and currently serves on the ACM SigCHI Lifetime Awards committee.