Dipl.-Ing. Dr. Velitchko Filipov, BSc.

Position:	Postdoctoral Researcher, TU Wien, Faculty of Informatics
Fields:	Computer Science, Human Computer Interaction, Visual Analytics, Network Analysis
Languages:	English (C2), German (C1), Bulgarian (Native)
Contact:	**velitchko.filipov@tuwien.ac.at**
Website:	**velitchko.github.io**
ORCID:	**0000-0001-9592-2179**
LinkedIn:	**linkedin.com/in/velitchko-filipov**
Scholar:	**scholar.google.com/citations?user=2FYZ3QYAAAAJ**

1 Education

2024 **Ph.D. (Dr.-Techn.)** — Vienna, Austria
Doctoral Degree
TU Wien
Faculty of Informatics, Institute of Visual Computing and Human-Centered Technology
Dissertation: "Networks in Time and Space: Visual Analytics of Dynamic Network Representations"

2018 **M.Sc. (Dipl.-Ing.)** — Vienna, Austria
Master's Degree
TU Wien
Faculty of Informatics: Institute of Visual Computing and Human-Centered Technology
Thesis: "Visual Exploration and Comparison of Multiple Resumes: Focus on Time and Space"

2013 **B.Sc.** — Vienna, Austria
Bachelor's Degree
TU Wien
Faculty of Informatics: Institute of Visual Computing and Human-Centered Technology
Thesis: "Social Interface and Interaction Design"

2 Employment and Further Training

2024–Present	**Postdoctoral Researcher** Vienna, Austria	TU Wien
2017–2024	**PhD Student** Vienna, Austria	TU Wien
2023–Present	**CTO** Remote	iPal Network
2021–2023	**Developer** Remote	Sentiment Trader
2015–2016	**Junior Web Developer** Vienna, Austria	studioQ
2012–2014	**Junior Researcher** Remote	Crocotta Research & Development Ltd
2009	**Junior Web Designer** Sofia, Bulgaria	Bianor
2008	**Junior Web Designer** Sofia, Bulgaria	Nextborn

3 Prizes, Awards, and Honors

Best Full Paper EuroVis 2025: **Award**↗
"NODKANT: Exploring Constructive Network Physicalization"
Awarded at EuroVis, 3rd of June 2025

Top Cited Article 2025: **Award**↗
"Are We There Yet? A Roadmap of Network Visualization from Surveys to Task Taxonomies"
Wiley & Sons, 19th of March 2025

Best Dissertation Nominee 2024: **Entry**↗
Dissteration: "Networks In Time and Space: Visual Analytics of Dynamic Network Representations"
TU Wien Informatics Awards, 2nd of December 2024

Best Paper VIS4DH 2019: **Award**↗
"Bridging the Gap between Visual Analytics and Digital Humanities: Beyond the Data-Users-Tasks Design Triangle"
Awarded at IEEE VIS 2019, Vancouver, Canada

Graph Drawing Contest 2019: **Award**↗
"The Fabric of Heroes"
Awarded at the 27th International Symposium on Graph Drawing and Network Visualization

Graph Drawing Contest 2018: **Award**↗
"The Circle of Thrones"
Awarded at the 26th International Symposium on Graph Drawing and Network Visualization

EPILOG - Best Master Thesis Nominee 2018: Entry↗
Thesis: "Visual Exploration and Comparison of Multiple Resumes: Focus on Time and Space"
Presented at TU Wien, 18th of January 2018

4 Invited Talks

- **BioMedVis:** "Title of Talk" [**biomedvis2025**]
  extitLudwig Boltzmann Institute, 2025
- **WinterGraph:** "Title of Talk" [**wintergraph2024**]
  extitKaprun (internal workshop), 2024
- **EuroVis:** "Title of Talk" [**eurovis2023**]
  extitEuroVis, CGF article, 2023
- **Shonan:** "Title of Talk" [**shonan2022**]
  extitMaterial Sciences, Shonan, 2022
- **Vienna Perspectives:** "Title of Talk" [**vienna2021**]
  extitGroove The City (IMMV), Vienna, 2021
- **VIS:** "Title of Talk" [**vis2020**]
  extitStudy + TimeLighting, VIS, 2020
- **AustroVIS:** "Title of Talk" [**austrovis2019**]
  extitChronicles of AH + Structuring the Spread (internal workshop), AustroVIS, 2019

5 Academic Cooperation

SANE (FWF WEAVE) 2024 – ongoing
Role: (co-PI) Post-Doc. Senior Researcher, Visual Analytics
Principle Investigator: Asst.Prof. Alessio Arleo
Supervisors: Prof. Silvia Miksch
Funding: FWF 10.55776/I6635 (425,282 €)
Focus: Network Visualization, Spatio-temporal Data Visualization, Information Diffusion, Uncertainty Visualization, Visual Analytics,

ArtVis (FWF) 2022 – ongoing
Role: (co-PI) Post-Doc. Senior Researcher, Visual Analytics
Principle Investigator: Prof. Silvia Miksch
Supervisors: Prof. Silvia Miksch
Funding: FWF 10.55776/P35767 (410,779 €)
Focus: Network Visualization, Spatio-temporal Data Visualization, Visual Analytics, Digital Art History

Knowledge Assisted Visual Analytics (FWF) 2020 – 2022
Role: Pre-Doc. Junior Researcher, Visual Analytics
Principle Investigator: Prof. Silvia Miksch
Supervisors: Prof. Silvia Miksch
Funding: FWF 10.55776/P31419 (407,008 €)
Focus: Dynamic Network Visualization, Visual Analytics, Health Care, Knowledge Modelling

Interactive Music Mapping Vienna (FWF) 2017 – 2020
Role: Pre-Doc. Junior Researcher, Visual Analytics

Principle Investigator: Prof. Susana Zapke
Supervisors: Prof. Silvia Miksch
Funding: FWF 10.55776/AR384 (415,338 €)
Focus: Dynamic Network Visualization, Event-based Network Visualization, Visual Analytics, Digital Humanities

PolyCube (FWF) 2017 – 2019
Role: Pre-Doc. Junior Researcher, Visual Analytics
Principle Investigator: Dr. Eva Mayr
Supervisors: Prof. Silvia Miksch
Funding: FWF 10.55776/P28363 (342,895 €)
Focus: Network Visualization, Set-typed Data and Spatio-temporal Data Visualization, Visual Analytics

6 Service to Academic Community

I actively contribute to the academic community through reviewing, organizing, and committee work:

Journal Reviewing

- Computer Graphics Forum (Wiley & Sons)
- IEEE Transactions on Visualization and Computer Graphics
- Computers & Graphics (Elsevier)

Conference Program Committees

- IEEE VIS (Full and Short Paper Tracks) – 2024, 2025
- IEEE PacificVis (Conference and Journal Paper Tracks) – 2024, 2025, 2026
- Pacific Graphics (Full Paper Track) – 2026
- EuroVis (Full, Short, Education Paper Tracks) – 2024, 2025
- Pacific Graphics (Full Paper Track) – 2025
- Graph Drawing & Network Visualization (Full Paper Track) – 2024, 2025
- Program Committee, Short Papers @ IEEE VIS – 2025
- Program Committee, EduVis Workshop @ IEEE VIS – 2025
- VIPRA Workshop Program Committee @ EuroVis – 2024, @ BPM – 2025

Workshop Organization and Chairing

- Visual Analytics in Healthcare (VAHC) Half-day Workshop Program Committee @ IEEE VIS – 2021, 2023, 2025
- Visual Analytics in Healthcare (VAHC) Full-day Workshop Paper Chair @ IEEE VIS – 2025
- VisGames Half-day Workshop Co-Chair & Co-Organizer @ EuroVis – 2025
- VisGames Full-day Workshop (Second Edition) Organizer & Co-Chair @ EuroVis – 2026

Local Organization

- Local Organizer for EuroVis – 2026

7 Teaching Activity

I support junior researchers and supervise students at TU Wien:

Teaching (Bachelor and Master courses):

- (VO) Information Visualization
- (VO) Information Design and Visualization
- (UE) Information Design and Visualization
- (SE) Seminar on Human-Centered Computing, Information Visualization, Visual Analytics, Medical Informatics
- (PR) Projects in Media and Human-Centered Computing, Medical Informatics,
- (PR) Projects: Visual Computing 1 & 2
- (PR) Bachelor & Master Theses

Bachelor Theses:

- (2026) “MetroMap Diffusion”. Benedikt Gschmieder.
- (2026) “Diffusion?”. Michael Matte
- (2025) “Fuzzy Dynamic Networks”. Oliver Kastner
- (2025) “AdMaTilE: Visualizing Dynamic Adjacency Matrices in a Multiple-Coordinated-View System”
- (2024) “Temporal Motif Detection in Dynamic Networks”
- (2021) “PromNetworkVis: Dynamic Network Visualization to Patient-Reported Outcome Measures”
- (2019) “Visualization of Time-oriented Multivariate Survey Data”
- (2019) “EventQuery: Visual Querying & Pattern Matching in Time-Oriented Geospatial Data”
- (2018) “An Interactive Dashboard Approach for the Visual Analysis of Rocket Flight Data”

Master Theses:

- (2024) “Dynamic Network Analysis with Centrality Measures”
- (2023) “Utilizing Visual Analytics for Network Exploration in the Domain of Art History Research”

Building Collaborations

I actively establish interdisciplinary collaborations, with a particular focus on art history and the humanities.
My approach centers on:

- **Interactive, hands-on, and co-design methods** to engage stakeholders, elicit requirements, and communicate complex concepts
- **Onboarding** and **community-driven knowledge graphs** in decentralized research settings to foster effective knowledge exchange and management

I am a strong advocate for open science, transparency, and reproducibility. I actively:

- support recognition from the **Graphics Replicability Stamp Initiative**↗
- encourage people to be transparent about **pre-registration** of their study designs and analysis plans (e.g., via OSF.io)
- promote open-access and open-source **code, methods, and supplementary materials** to support replicability and knowledge dissemination

My collaborative efforts have resulted in:

- **Diverse range** of joint publications
- **Successful project proposals**
- **Ongoing interdisciplinary research**

Further details are available in my publications list and on my **website**↗.

Research Statement

My research focuses on the intersection of human-centered computing, information visualization, and visual analytics. I aim to develop innovative visualization techniques and tools that empower users to explore and understand complex data, particularly in the context of medical informatics and art history.
I employ a user-centered design approach, involving stakeholders throughout the research process to ensure that the resulting solutions are relevant and effective. My work often involves the use of interactive visualizations, machine learning, and data mining techniques to uncover insights from large and dynamic datasets.
I am particularly interested in the following research areas:

- **Dynamic Network Visualization:** Developing methods for visualizing and analyzing dynamic networks, with applications in healthcare and social media.
- **Visual Analytics for Art History:** Exploring how visual analytics can support art historians in their research, including the analysis of large image datasets and the exploration of artistic styles and trends.
- **Human-Computer Interaction:** Investigating how users interact with visualizations and developing design guidelines to improve usability and accessibility.

Teaching Statement

My teaching philosophy centers on fostering an engaging and inclusive learning environment that encourages critical thinking and practical application of knowledge. I believe in the importance of connecting theoretical concepts with real-world scenarios to enhance students' understanding and retention.

Open Science: All of my publications are openly accessible (**Google Scholar**↗; **Web of Science**↗). I received the IEEE Graphics Replicability Stamp Initiative award (**details**↗). Implementations of my approaches as well as results and analysis are open-sourced (**GitHub**↗). I actively promote reproducibility, replicability, and transparency in academic research, providing all materials linked to my publications.

Publications

[Ehl+24] H. Ehlers et al. "Me! Me! Me! Me! A Study And Comparison Of Ego Network Representations". In: COMPUTERS & GRAPHICS-UK 125 (2024), pp. 1–15. ISSN: 0097-8493. DOI: 10.1016/j.cag.2024.104123. URL: https://www.sciencedirect.com/science/article/pii/S0097849324002589.

[Ehl+25a] H. Ehlers et al. "BattleGraphs: Forge, Fortify, And Fight In The Network Arena". In: ed. by C. Stoiber et al. The Eurographics Association, 2025. DOI: 10.2312/visgames.20251161.

[Ehl+25b] H. Ehlers et al. "Wiggle! Wiggle! Wiggle! Visualizing Uncertainty In Node Attributes In Straight-Line Node-Link Diagrams Using Animated Wiggliness". In: COMPUTERS & GRAPHICS-UK 131 (2025). ISSN: 0097-8493. DOI: 10.1016/j.cag.2025.104290.

[FAM21] V. Filipov, A. Arleo, and S. Miksch. "Exploratory User Study On Graph Temporal Encodings". In: 2021 IEEE 14th Pacific Visualization Symposium (PacificVis). Tianjin, China: IEEE 14th Pacific Visualization Symposium (PacificVis), 2021. DOI: 10.1109/pacificvis52677.2021.00025.

[FAM23] V. Filipov, A. Arleo, and S. Miksch. "Are We There Yet? A Roadmap Of Network Visualization From Surveys To Task Taxonomies". In: Computer Graphics Forum (2023). ISSN: 0167-7055. DOI: 10.1111/cgf.14794.

[FFM18] V. Filipov, P. Federico, and S. Miksch. "CV3: Visual Exploration, Assessment, And Comparison Of CVs". In: EuroVis 2018 - Posters. Ed. by A. Puig and R. Raidou. The Eurographics Association, 2018. ISBN: 978-3-03868-065-9. DOI: 10.2312/eurp.20181115.

[Fil+18] V. Filipov et al. "The Circle Of Thrones: Conveying The Story Of Game Of Thrones Using Radial Infographics". In: International Symposium on Graph Drawing and Network Visualization (GD 2018) - Creative Contest. 2018. URL: https://www.cvast.tuwien.ac.at/bibcite/reference/477.

[Fil+19a] V. Filipov et al. "CV3: Visual Exploration, Assessment, And Comparison Of CVs". In: Computer Graphics Forum 38 (3 2019). Ed. by M. Gleicher, H. Leitte, and I. Viola, pp. 107–118. DOI: 10.1111/cgf.13675.

[Fil+19b] V. Filipov et al. "Exiled But Not Forgotten: Investigating Commemoration Of Musicians In Vienna After 1945 Through Visual Analytics". In: Proceedings of the Third Conference on Biographical Data in a Digital World 2019. Proceedings of the Third Conference on Biographical Data in a Digital World 2019, 2019. URL: https://ceur-ws.org/Vol-3152/BD2019_paper_8.pdf.

[Fil+19c] V. Filipov et al. "The Fabric Of Heroes: An Infographic About Marvel Cinematic Universe". In: International Symposium on Graph Drawing and Network Visualization (GD 2018) - Creative Contest. 2019. URL: https://www.cvast.tuwien.ac.at/publications/fabricofheroes.

[Fil+21] V. Filipov et al. "Gone Full Circle: A Radial Approach To Visualize Event-Based Networks In Digital Humanities". In: Visual Informatics 5 (1 2021), pp. 45–60. ISSN: 2543-2656. DOI: 10.1016/j.visinf.2021.01.001.

[Fil+23a] V. Filipov et al. Back To The Graphs: A Collection Of Datasets And Quality Criteria For Temporal Networks Layout And Visualization. 2023. DOI: 10.34726/5451.

[Fil+23b] V. Filipov et al. Chronicles Of Artist Exhibitions: Exploring Temporal Patterns In Artists' Co-Exhibition Activity Using Visual Analytics. 2023. URL: https://repositum.tuwien.at/handle/20.500.12708/190421.

[Fil+23c] V. Filipov et al. "On Network Structural And Temporal Encodings: A Space And Time Odyssey". In: IEEE Transactions on Visualization and Computer Graphics 14 (8 2023). ISSN: 1077-2626. DOI: 10.1109/TVCG.2023.3310019.

[Fil+23d] V. Filipov et al. "On Time And Space: An Experimental Study On Graph Structural And Temporal Encodings". In: ed. by P. Angelini and R. von Hanxleden. Vol. 13764. Springer Cham, 2023, pp. 271–288. DOI: 10.1007/978-3-031-22203-0_20.

[Fil+24a] V. Filipov et al. "TimeLighting: Guidance-Enhanced Exploration Of 2D Projections Of Temporal Graphs". In: ed. by M. A. Bekos and M. Chimani. Vol. 14465. Lecture Notes in Computer Science. Cham: Springer, 2024, pp. 231–245. DOI: 10.1007/978-3-031-49272-3_16.

[Fil+24b] V. Filipov et al. "TimeLighting: Guided Exploration Of 2D Temporal Network Projections". In: IEEE Transactions on Visualization and Computer Graphics (2024). ISSN: 1077-2626. DOI: 10.1109/TVCG.2024.3514858.

[Fil17] V. Filipov. "Visual Exploration And Comparison Of Multiple Resume: Focus On Time And Space". MA thesis. Wien: Technische Universität Wien, 2017. DOI: 10.34726/hss.2017.43587.

[Fil22] V. Filipov. Interactive Music Mapping Vienna: Networks In Time And Space. 2022. URL: https://repositum.tuwien.at/handle/20.500.12708/152680.

[Fil24a] V. Filipov. Dynamic Perspectives: Visualizing Time And Networks For Analytical Insights. 2024. DOI: 10.34726/6362.

[Fil24b] V. Filipov. "Networks In Time And Space: Visual Analytics Of Dynamic Network Representations". PhD thesis. Wien: Technische Universität Wien, 2024. DOI: 10.34726/hss.2024.123022.

[Fil24c] V. Filipov. Presenting CVAST Research Group. 2024. URL: https://repositum.tuwien.at/handle/20.500.12708/193508.

[Fil25] V. Filipov. Networks In Motion. 2025. DOI: 10.34726/10139.

[HF24] N.-M. Herl and V. Filipov. "AdMaTilE: Visualizing Event-Based Adjacency Matrices In A Multiple-Coordinated-Views System". In: International Symposium on Graph Drawing and Network Visualization (GD 2024) - Posters. Ed. by S. Felsner and K. Klein. Vol. 320. 2024, 46:1–46:3. DOI: 10.4230/LIPIcs.GD.2024.46.

[Kam+23] T. Kamencek et al. TimeScapes: Towards A Visual Characterization Of Modern Artist' Exhibition Activity. 2023. URL: https://repositum.tuwien.at/handle/20.500.12708/193549.

[Lin+25] S. van der Linden et al. "Towards Integrating Visual Analytics In Multi-Perspective Conformance Checking: A Call To Action". In: ed. by H.-J. Schulz and A. Vilanova. The Eurographics Association, 2025. DOI: 10.2312/eurova.20251100.

[May+19] E. Mayr et al. "Visualizing Biographical Trajectories By Historical Artifacts: A Case Study Based On The Photography Collection Of Charles W. Cushman". In: Proceedings of the Third Conference on Biographical Data in a Digital World 2019. Proceedings of the Third Conference on Biographical Data in a Digital World 2019, 2019. URL: https://ceur-ws.org/Vol-3152/BD2019_paper_7.pdf.

[Pah+25] D. Pahr et al. "NODKANT: Exploring Constructive Network Physicalization". In: Computer Graphics Forum (2025). ISSN: 0167-7055. DOI: 10.1111/cgf.70140. URL: https://onlinelibrary.wiley.com/doi/10.1111/cgf.70140.

[PEF25] D. Pahr, H. Ehlers, and V. Filipov. "HoloGraphs: An Interactive Physicalization For Dynamic Graphs". In: Proceedings of the 20th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications - Volume 1: IVAPP. INSTICC. SciTePress, 2025, pp. 859–866. ISBN: 978-989-758-728-3. DOI: 10.5220/0013116000003912.

[Sal+19a] S. Salisu et al. “Shapes Of Time: Visualizing Set Changes Over Time”. In: Workshop on Set Visualization (SetVis) at IEEE VIS 2019. 2019. URL: https://repositum.tuwien.at/handle/20.500.12708/86982.

[Sal+19b] S. Salisu et al. “Shapes Of Time: Visualizing Set Changes Over Time In Cultural Heritage Collections”. In: 21st EG/VGTC Conference on Visualization (EuroVis 2019). Ed. by J. M. Pereira and R. Raidou. Computer Graphics Forum. 38-3: The Eurographics Association, 2019, pp. 45–47. DOI: 10.2312/eurp.20191142.

[Sch+19] V. Schetinger et al. “Bridging The Gap Between Visual Analytics And Digital Humanities: Beyond The Data-Users-Tasks Design Triangle”. In: Workshop on Visualization for Digital Humanities (VIS4DH) at IEEE VIS 2019. 2019. URL: https://vis4dh.dbvis.de/2019/papers/2019/VIS4DH2019_paper_13.pdf.

[Sch+21] V. Schetinger et al. “Xenakis: Experimenting With Data, Cities, and Sounds”. In: alt.VIS Workshop at IEEE VIS 2021. 2021. DOI: 10.48550/ARXIV.2109.14992. arXiv: 2109.14992. URL: https://arxiv.org/abs/2109.14992.

[Sch+22] V. Schetinger et al. “I Learn To Diffuse, Or Data Alchemy 101: A Mnemonic Manifesto”. In: alt.VIS Workshop at IEEE VIS 2021. 2022. DOI: 10.48550/ARXIV.2208.03998.

[SF23] S. Salisu and V. Filipov. “Blockchain Forensics: A Modern Approach To Investigating Cybercrime In The Age Of Decentralisation”. In: vol. 18. The proceedings of the ... international conference on information warfare and security. Reading, UK: Academic Conferences International Limited, 2023, pp. 338–347. DOI: 10.34190/iccws.18.1.947.

[Tus+24] M. Tuscher et al. “Mapping The Avantgarde: Visualizing Modern Artists’ Exhibition Activity”. In: EuroVis 2024 - Short Papers. The Eurographics Association, 2024. DOI: 10.2312/evs.20241063.

[Tus+25] M. Tuscher et al. “Nodes, Edges, And Artistic Wedges: A Survey On Network Visualization In Art History”. In: Computer Graphics Forum 44 (3 2025). ISSN: 0167-7055. DOI: 10.1111/cgf.70154. URL: https://onlinelibrary.wiley.com/doi/10.1111/cgf.70154.

[Win+18] F. Windhager et al. “Visualizing Uncertainty In Cultural Heritage Collection”. In: EuroVis Workshop on Reproducibility, Verification, and Validation in Visualization (EuroRV3). Ed. by K. Lawonn et al. The Eurographics Association, 2018. ISBN: 978-3-03868-066-6. DOI: 10.2312/eurorv3.20181142.

[Win+20] F. Windhager et al. “Many Views Are Not Enough: Designing For Synoptic Insights In Cultural Collections”. In: IEEE Computer Graphics and Applications 40 (3 2020), pp. 58–71. ISSN: 0272-1716. DOI: 10.1109/mcg.2020.2985368.