

## ABOUT

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I am a Ph.D. candidate in computer science at Harvard University, advised by Hanspeter Pfister. I am broadly interested in using interactive data visualization inverse graphics for applications in computational neuroscience. In particular, my research focuses on building scalable visual analysis tools & machine-learning algorithms to study synapse-level wiring diagrams of neuronal tissue.

## EDUCATION

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<b>Harvard University</b> Ph.D. in Computer Science, Advisor: Prof. Hanspeter Pfister – Focus: Data Visualization, Inverse Graphics, Computational Neuroscience	Cambridge, MA 2021–2027
<b>TU Wien</b> M.Sc. & B.Sc (with Honors) in Computer Science, Advisor: Prof. Eduard Gröller – Focus: Data Visualization, Biomedical Imaging, Computer Vision – GPA: 1.1/1.0	Vienna, Austria 2015–2021

## EXPERIENCE

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<b>Harvard University</b> Research Assistant with Prof. Hanspeter Pfister – Visualization of Large-Scale Biomedical Data – Towards Efficient and Scalable Analysis Tools for Connectomics	Cambridge, MA 09/2021 - present
<b>King Abdullah University of Science &amp; Technology (KAUST)</b> Research Intern with Prof. Markus Hadwiger – Observer Relative Flow Visualization in Curved Spaces – Co-authored a publication which won the SciVis Best Paper Award at IEEE VIS 2020	Thuwal, Saudi Arabia 02/2019 - 05/2019
<b>Brainlab AG</b> Research Intern – Path Tracing for Realtime 3D Medical Visualization – Mixed Reality for 3D Medical Visualization	Munich, Germany 08/2018 - 01/2019

## PUBLICATIONS

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- [1] Z. Chen, C. Zhang, Q. Wang, **J. Troidl**, S. Warchol, J. Beyer, N. Gehlenborg, and H. Pfister, “[Beyond Generating Code: Evaluating GPT on a Data Visualization Course](#)”, *IEEE VIS Workshop on Visualization Education, Literacy, and Activities*, 2023.
- [2] S. Dorkenwald, C. M. Schneider-Mizell, D. Brittain, A. Halageri, C. Jordan, N. Kemnitz, M. A. Castro, W. Silversmith, J. Maitin-Shephard, **J., Troidl**, *et al.*, “[CAVE: Connectome Annotation Versioning Engine](#)”, *bioRxiv*, pp. 2023–07, 2023.

- [3] P. Harth, A. Bast, **J., Troidl**, B. Meulemeester, H. Pfister, J. Beyer, M. Oberlaender, H.-C. Hege, and D. Baum, “[Rapid Prototyping for Coordinated Views of Multi-scale Spatial and Abstract Data: A Grammar-based Approach](#)”, in *Eurographics Workshop on Visual Computing for Biology and Medicine (VCBM)*, 2023.
- [4] **J. Troidl**, S. Warchol, J. Choi, J. Matelsky, N. Dhanyasi, X. W. Wang, B. Wester, D. Wei, J. Lichtman, H. Pfister, and J. Beyer, “[Vimo: Visual Analysis of Neuronal Connectivity Motifs](#)”, *IEEE Transactions on Visualization and Computer Graphics*, 2023.
- [5] S. Prabhakaran, C. Yapp, G. J. Baker, J. Beyer, Y. H. Chang, A. L. Creason, R. Krueger, J. Muhlich, N. H. Patterson, K. Sidak, D. Sudar, A. J. Taylor, L. Ternes, **J., Troidl**, Y. Xie, A. Sokolov, D. R. Tyson, and the Cell Imaging Hackathon 2022 Participants, “[Addressing Persistent Challenges in Digital Image Analysis of Cancerous Tissues](#)”, Preprint, 2023, pp. 2023–07.
- [6] P. Velicky, E. Miguel, J. M. Michalska, J. Lyudchik, D. Wei, Z. Lin, J. F. Watson, **J., Troidl**, J. Beyer, Y. Ben-Simon, *et al.*, “[Dense 4D nanoscale reconstruction of living brain tissue](#)”, *Nature Methods*, pp. 1–10, 2023.
- [7] J. Beyer\*, **J. Troidl\***, S. Boorboor, M. Hadwiger, A. Kaufman, and H. Pfister, “[A Survey of Visualization and Analysis in High-Resolution Connectomics](#)”, in *Computer Graphics Forum*, Wiley Online Library, vol. 41, 2022, \*indicates equal contribution.
- [8] **J. Troidl**, C. Cali, E. Gröller, H. Pfister, M. Hadwiger, and J. Beyer, “[Barrio: Customizable Spatial Neighborhood Analysis and Comparison for Nanoscale Brain Structures](#)”, *Computer Graphics Forum (Proceedings Eurographics/IEEE Symposium on Visualization, Eurovis 2022)*, vol. 41, no. 3, 2022.
- [9] P. Rautek, M. Mlejnek, J. Beyer, **J. Troidl**, H. Pfister, T. Theußl, and M. Hadwiger, “[Objective Observer-Relative Flow Visualization in Curved Spaces for Unsteady 2D Geophysical Flows](#)”, *IEEE Transactions on Visualization and Computer Graphics*, 2020.

## TEACHING

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- **Head Teaching Fellow** for Extension School Students (DCE) at Harvard University Fall 2022, 2023  
*CS171 - Visualization*
- **Teaching Fellow** at TU Wien Fall 2020  
*Selected Chapters from Medical Visualization*
- **Teaching Fellow** at TU Wien Spring 2017, 2018  
*Introduction to Visual Computing*
- **Teaching Fellow** at TU Wien Fall 2017  
*Introduction to Computer Engineering*

## SKILLS

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- **Coding:** Python, PyTorch, Java-Script
- **Tools:** GCloud, Unity, QT, CMake, Latex

## SCHOLARSHIPS AND AWARDS

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- ILW Best Master Thesis Award in informatics for life sciences, German Informatics Society and German Association for Medical Informatics, Biometry and Epidemiology. 2022
- Best SciVis Paper, IEEE VIS 2020 (among the best 3 papers out of 211 accepted papers) 2020
- Scholarship, Austrian Marshall Plan Foundation (9.100\$) 2020

- Bachelor with Honors, TU Wien (among the top 5% of CS students at TU Wien) 2020
- Short-term grant for scientific work abroad, TU Wien (3.100\$) 2020
- Merit Based Scholarship, TU Wien (1.000\$) 2018

## TALKS

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- **Motif Analysis in Connectomes** at KAUST, Saudi Arabia Spring 2023  
*Seminar Talk*
- **The State of the Art in Neural Rendering** at Harvard University Spring 2023  
*Seminar Talk*
- **Scalable Spatial Neighborhood Analysis in Connectomes** in Rome, Italy Summer 2022  
*Conference Presentation at EuroVis*
- **The State of the Art in Connectome Visualization** in Rome, Italy Summer 2022  
*Conference Presentation at EuroVis*
- **Visual Neuronal Motif Analysis in Connectomes** in Berlin, Germany Summer 2022  
*Poster Presentation at the International Connectomics Conference*

## REFERENCES

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- **Hanspeter Pfister**, An Wang Professor of Computer Science, Harvard University  
[pfister@g.harvard.edu](mailto:pfister@g.harvard.edu)
- **Eduard Gröller**, Full Professor, TU Wien  
[groeller@cg.tuwien.ac.at](mailto:groeller@cg.tuwien.ac.at)
- **Markus Hadwiger**, Full Professor, KAUST  
[markus.hadwiger@kaust.edu.sa](mailto:markus.hadwiger@kaust.edu.sa)