

Jochen Görtler

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Profile

I have just finished my Ph.D. in computer science at the University of Konstanz. My research area is information visualization, with a focus on handling uncertainty throughout the visual computing pipeline. I am curious to work on challenging problems and understand their theoretical and mathematical foundations. Lately, I have been developing visualizations that help us better understand machine learning algorithms.

Education

- 2016–2021** **Ph.D. in Computer Science**
Visual Computing Group – Prof. Deussen, University of Konstanz
Thesis: Quantitative methods for uncertainty visualization
- 2012–2015** **M.Sc. with distinction in Computer Science**
Karlsruhe Institute of Technology
Thesis: Superpixels for identifying structures in laparoscopic surgery
- 2008–2012** **B.Sc. in Computer Science**
Karlsruhe Institute of Technology
Thesis: Visualization concept for laparoscopy using augmented reality

Experience

- 06/20–09/20** **Apple (AIML, Seattle – Remote)**
3+ months *Human Computer Interaction + Machine Learning Intern*
I developed a domain-specific language together with a query-based visualization system for exploring the performance of machine learning methods on hierarchical and multi-output predictions (*Paper submitted to CHI '22*).
- 06/19–08/19** **Visualization Design Lab (SCI, University of Utah) – Prof. Lex**
3 months *Visiting Researcher*
I co-developed a system that predicts the user's intent when interacting with visualization systems by comparing the user's selection to the output of various machine learning methods. For this, I designed a client-server architecture using Python and Flask to decouple the frontend visualization from the ML backend.
- 09/15–11/15** **Institute for Theoretical Informatics (KIT) – Prof. Wagner**
3 months *Student Research Assistant*
I created a tool for labeling medical drawings and evaluated mathematical models for describing the quality and consistency of labelings. To achieve this, I implemented various algorithms from computational geometry.
- 02/14–07/14** **KUKA Laboratories GmbH**
6 months *Voluntary Internship*
I implemented an efficient RANSAC-based algorithm for object recognition and pose estimation in point clouds from a Kinect camera and automated the build process for external libraries in a cross-platform environment using CMake.

Other Experience

- 03/20–04/20** **Gesundheitsverbund Landkreis Konstanz**
2 months *Volunteer*
I co-organized the development of an interactive map of available intensive-care hospital beds in Germany during the COVID-19 pandemic. I helped to set up and rollout communication infrastructure for teleworking and telehealth. As part of this, I devised an internal website for sharing e-learning materials with doctors and healthcare workers.

Skills and Qualifications

- Languages** German (native), English (C2), French (B1), Spanish (A1)
Programming Rust, JavaScript, TypeScript, WebAssembly, C++, OpenGL/WGPU, GLSL
Frameworks D3.js, Svelte, Qt, OpenCV

Many of my projects are on GitHub [↗](#), published under open source licenses.

Publications

Neo: Generalizing Confusion Matrix Visualization to Hierarchical and Multi-Output Labels
Preprint (2021)

J Görtler, F Hohman, D Moritz, K Wongsuphasawat, D Ren, R Nair, M Kirchner, K Patel
URL: <https://fredhohman.com/papers/neo> ↗

spEuler: Semantics-preserving Euler diagrams ★ **IEEE VIS 2021 Honorable Mention**
IEEE Transactions on Visualization and Computer Graphics (2022)

R Kehlbeck, J Görtler, Y Wang, O Deussen
URL: <https://arxiv.org/abs/2108.03529> ↗

Predicting intent behind selections in scatterplot visualizations
SAGE Information Visualization (2021)

K Gadhawe, J Görtler, Z Cutler, C Nobre, O Deussen, M Meyer, J Phillips, A Lex
DOI: [10.1177/14738716211038604](https://doi.org/10.1177/14738716211038604) ↗

Uncertainty-aware principal component analysis
IEEE Transactions on Visualization and Computer Graphics (2020)

J Görtler, T Spinner, D Streeb, D Weiskopf, O Deussen
DOI: [10.1109/tvcg.2019.2934812](https://doi.org/10.1109/tvcg.2019.2934812) ↗

A visual exploration of Gaussian processes (extended version)
Distill.pub (2019)

J Görtler, R Kehlbeck, O Deussen
DOI: [10.23915/distill.00017](https://doi.org/10.23915/distill.00017) ↗

Stippling of 2D scalar fields ★ **PacificVis 2019 Best Paper**
IEEE Transactions on Visualization and Computer Graphics (2019)

J Görtler, M Spicker, C Schulz, D Weiskopf, O Deussen
DOI: [10.1109/tvcg.2019.2903945](https://doi.org/10.1109/tvcg.2019.2903945) ↗

A visual exploration of Gaussian processes ★ **Best Submission Honorable Mention**
Proceedings of the Workshop on Visualization for AI Explainability (VISxAI) (2018)

J Görtler, R Kehlbeck, O Deussen
URL: <https://www.jgoertler.com/visual-exploration-gaussian-processes/> ↗

Towards an interpretable latent space
Proceedings of the Workshop on Visualization for AI Explainability (VISxAI) (2018)

T Spinner, J Körner, J Görtler, O Deussen
URL: <https://spinhil.github.io/towards-an-interpretable-latent-space/> ↗

Bubble treemaps for uncertainty visualization
IEEE Transactions on Visualization and Computer Graphics (2018)

J Görtler, C Schulz, D Weiskopf, O Deussen
DOI: [10.1109/tvcg.2017.2743959](https://doi.org/10.1109/tvcg.2017.2743959) ↗

Probabilistic graph layout for uncertain network visualization
IEEE Transactions on Visualization and Computer Graphics (2017)

C Schulz, A Nocaj, J Görtler, O Deussen, U Brandes, D Weiskopf
DOI: [10.1109/tvcg.2016.2598919](https://doi.org/10.1109/tvcg.2016.2598919) ↗

Superpixel-based structure classification for laparoscopic surgery
SPIE Medical Imaging (2016)

S Bodenstedt, J Görtler, M Wagner, H Kenngott, BPM Stich, R Dillmann, S Speidel
DOI: [10.1117/12.2216750](https://doi.org/10.1117/12.2216750) ↗

Context-aware augmented reality in laparoscopic surgery
Computerized Medical Imaging and Graphics (2013)

D Katić, AL Wekerle, J Görtler, P Spengler, S Bodenstedt, S Röhl, S Suwelack, HG Kenngott, M Wagner, BP Müller-Stich, R Dillmann, S Speidel
DOI: [10.1016/j.compmedimag.2013.03.003](https://doi.org/10.1016/j.compmedimag.2013.03.003) ↗