Edith Tretschk

edithtretschk.github.io

Education

Max Planck Institute for Informatics and Saarland University Oct. 2018 – July 2023
PhD Candidate in Computer Science *Saarbrücken, Germany*
Topic: Representing and Reconstructing General Non-Rigid Objects with Neural Models; Advisor: Christian Theobalt

Graduate School of Computer Science, Saarland University April 2017 – Oct. 2018
Doctoral Preparatory Phase *Saarbrücken, Germany*

Saarland University Oct. 2014 – March 2017
Bachelor of Science in Computer Science *Saarbrücken, Germany*

- Bachelor Thesis: Variational Pansharpening with Nonlinear Anistropic Diffusion; Advisor: Joachim Weickert
- Grade: 1.1, Graduated in Top 3

Experience

Research Scientist since Dec. 2023
Meta Reality Labs Research *San Francisco Bay Area, USA*

- Working on 3D capture and reconstruction of digital humans

Research Internship June 2021 – Dec. 2021
Meta Reality Labs Research *San Francisco Bay Area, USA*

- Worked on reconstructing general dynamic scenes from multi-view input with dynamic NeRF
- Published a work on reconstructing a dynamic object with a physical deformation model using NeRF

Research Immersion Lab Oct. 2017 – March 2018
Mario Fritz' Scalable Learning & Perception group at MPII *Saarbrücken, Germany*

- Published a work on adversarial attacks on agents trained with reinforcement learning

Research Immersion Lab April 2017 – Oct. 2017
Christian Theobalt's Graphics, Vision & Video group at MPII *Saarbrücken, Germany*

- Extended a previously developed method to simultaneously reconstruct the object being tracked

Undergraduate Research Assistant Oct. 2016 – March 2017
Christian Theobalt's Graphics, Vision & Video group at MPII *Saarbrücken, Germany*

- Developed a method that tracks a non-rigid object in real time from depth video

Invited Talks

Representing and Reconstructing Dynamic Objects with Neural Models July 2023
Meta Reality Labs Research *San Francisco Bay Area, USA*

Representing and Reconstructing Dynamic Objects with Neural Models June 2023
Nvidia *San Francisco Bay Area, USA*

Representing and Reconstructing Dynamic Objects with Neural Models April 2023
Epic Games *San Francisco Bay Area, USA*

Beyond Faces, Hands, and Bodies: Modelling General Non-Rigid Objects September 2020
Kostas Daniilidis at University of Pennsylvania *Philadelphia, USA*

Teaching

Computer Vision and Machine Learning for Computer Graphics 2019, 2020, 2021
Saarland University and MPII *Saarbrücken, Germany*
- Supervised graduate students

Math Preparation Course for Freshmen 2016, 2017, 2018
Saarland University *Saarbrücken, Germany*
- Coached small groups
- Held lectures (only 2017)

Theoretical Computer Science 2017
Saarland University *Saarbrücken, Germany*
- Tutored a group of about 30 students

Programming 1 2015
Saarland University *Saarbrücken, Germany*
- Tutored a group of about 30 students

Re-Exam Preparation for Programming 1 2015
Saarland University *Saarbrücken, Germany*
- Tutored a group of about 30 students
- Held lectures
- Created exercise sheets

Awards & Honors

- Bachelor Award (for the three best Bachelor graduates in CS)
- Bachelor Honors Program
- Deutschlandstipendium Scholarship (April 2015 – March 2017)

Publications

[1] **E. Tretschk**, V. Golyanik, M. Zollhöfer, A. Bozic, C. Lassner, and C. Theobalt. "SceNeRFlow: Time-Consistent Reconstruction of General Dynamic Scenes". In: *International Conference on 3D Vision (3DV)*. 2024.

[2] H. Bhatia, **E. Tretschk**, Z. Lähner, M. Seelbach Benkner, M. Moeller, C. Theobalt, and V. Golyanik. "CCuantuMM: Cycle-Consistent Quantum-Hybrid Matching of Multiple Shapes". In: *Computer Vision and Pattern Recognition (CVPR)*. 2023.

[3] L. Rathi, **E. Tretschk**, C. Theobalt, R. Dabral, and V. Golyanik. "3D-QAE: Fully Quantum Auto-Encoding of 3D Point Clouds". In: *British Machine Vision Conference (BMVC)*. 2023.

[4] M. Seelbach Benkner, M. Krahn, **E. Tretschk**, Z. Lähner, M. Moeller, and V. Golyanik. "QuAnt: Quantum Annealing with Learnt Couplings". In: *International Conference on Learning Representations (ICLR)*. 2023.

[5] **E. Tretschk**, N. Kairanda, M. B. R, R. Dabral, A. Kortylewski, B. Egger, M. Habermann, P. Fua, C. Theobalt, and V. Golyanik. "State of the Art in Dense Monocular Non-Rigid 3D Reconstruction". In: *Computer Graphics Forum (EG STAR)*. 2023.

[6] H. Bhatia, **E. Tretschk**, C. Theobalt, and V. Golyanik. "Generation of Truly Random Numbers on a Quantum Annealer". In: *IEEE Access*. 2022.

[7] H.-y. Chen, **E. Tretschk**, T. Stuyck, P. Kadlecek, L. Kavan, E. Vouga, and C. Lassner. "Virtual Elastic Objects". In: *Computer Vision and Pattern Recognition (CVPR)*. 2022.

[8] N. Kairanda, **E. Tretschk**, M. Elgharib, C. Theobalt, and V. Golyanik. "ϕ-SfT: Shape-from-Template with a Physics-Based Deformation Model". In: *Computer Vision and Pattern Recognition (CVPR)*. 2022.

[9] A. Tewari, J. Thies, B. Mildenhall, P. Srinivasan, **E. Tretschk**, W. Yifan, C. Lassner, V. Sitzmann, R. Martin-Brualla, S. Lombardi, T. Simon, C. Theobalt, M. Nießner, J. T. Barron, G. Wetzstein, M. Zollhöfer, and V. Golyanik. "Advances in Neural Rendering". In: *Computer Graphics Forum (EG STAR)*. 2022.

[10] **E. Tretschk**, A. Tewari, V. Golyanik, M. Zollhöfer, C. Lassner, and C. Theobalt. "Non-Rigid Neural Radiance Fields: Reconstruction and Novel View Synthesis of a Dynamic Scene From Monocular Video". In: *International Conference on Computer Vision (ICCV)*. 2021.

[11] V. Sidhu, **E. Tretschk**, V. Golyanik, A. Agudo, and C. Theobalt. "Neural Dense Non-Rigid Structure from Motion with Latent Space Constraints". In: *European Conference on Computer Vision (ECCV)*. 2020.

[12] **E. Tretschk**, A. Tewari, V. Golyanik, M. Zollhöfer, C. Stoll, and C. Theobalt. "PatchNets: Patch-Based Generalizable Deep Implicit 3D Shape Representations". In: *European Conference on Computer Vision (ECCV)*. 2020.

[13] **E. Tretschk**, A. Tewari, M. Zollhöfer, V. Golyanik, and C. Theobalt. "DEMEA: Deep Mesh Autoencoders for Non-Rigidly Deforming Objects". In: *European Conference on Computer Vision (ECCV)*. 2020.

[14] S. Shimada, V. Golyanik, **E. Tretschk**, D. Stricker, and C. Theobalt. "DispVoxNets: Non-Rigid Point Set Alignment with Supervised Learning Proxies". In: *International Conference on 3D Vision (3DV)*. 2019.

[15] **E. Tretschk**, S. J. Oh, and M. Fritz. "Sequential Attacks on Agents for Long-Term Adversarial Goals". In: *ACM Computer Science in Cars Symposium (CSCS)*. 2018.