



ALEX SHELDRIK

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EDUCATION

Master of Science <i>Robotics, Cognition, Intelligence</i>	2023
Technical University Munich: School of Computation, Information and Technology	
Master of Science <i>Physics</i>	2020
Technical University Berlin	
Bachelor of Science <i>Physics</i>	2015
Technical University Berlin	

EXPERIENCE

Research Intern	Apr. 2021 – Mar. 2023
Prof. Nießner Visual Computing & Artificial Intelligence Group Munich, Germany	
<ul style="list-style-type: none">• Performed deep learning research for novel view synthesis and 3D reconstruction• Achieved 90% reduction in images required for photorealistic novel views by using RGBD data• Derived a novel loss for NeRFs that outperforms SoTA methods for scenes with opaque materials• Reconstructed textured meshes from pointclouds and from single views	
Esports Team Captain	Feb. 2016 – Nov. 2020
Various, most notably: Tempo Storm, Diablos and ABC Multiple International Locations	
<ul style="list-style-type: none">• Founded and managed an esports team, becoming World Champions in 2017• Responsible for roster, management and strategy• Acquired funding from VC-backed global esports organizations• Collaborated with sponsors and stakeholders	

SKILLS

Languages: German (Native), English (Native), Italian (C1), Spanish (B1), French (B1)
Programming: Python, C++
Frameworks: PyTorch, Lightning, NumPy, SciPy, Matplotlib, Pandas

SELECTED MACHINE-LEARNING & COMPUTERVISION PROJECTS

Neural Radiance Field Reconstruction with Depth and Normal Constraints. <i>Python</i>	Spring 2023
Technical University Munich	
<ul style="list-style-type: none">• Addressed the challenge of view synthesis from sparse-view supervision using Neural Radiance Fields• Evaluated the effectiveness of incorporating normal and depth maps as additional supervision signals• Developed a method to enhance reconstruction quality across all cases using supplementary depth data• Achieved photorealistic reconstructions with a 50-90% reduction in training views	
3D Reconstruction: single-view colored mesh generation <i>Python</i>	Fall 2021
Technical University Munich	
<ul style="list-style-type: none">• Designed and implemented a 3D Convolutional Neural Network with local feature and global features• Feature-map sub-selection are generated by using point to image plane projections• Network generates vertex-colored meshes from single images• Achieved a 2.7% increase in IoU and 464% reduction in Chamfer-L1 distance over state of the art	

Object detection and pose estimation using Random Forests | C++

Spring 2020

Technical University Munich

- Created an object detection pipeline in C++ using OpenCV for three distinct classes
- Histogram of Oriented Gradients for feature extraction and random forests for classifying windows
- Adopted selective search for region suggestions and applied Non-Maximum Suppression for bounding box finalization

ACHIEVEMENTS AND GRANTS

Fellowship Grant

Apr. 2021

Awarded to excellent Master's students to perform deep-learning research

WoW Arena World Champion (Arena World Championship)

Nov. 2017

Founded and captained an esports team that won a premiere \$280,000 Tournament

PUBLICATIONS

Nieto, P., Müller, D., Sheldrick, A., Günther, A., Miyazaki, M., & Dopfer, O. (2018). Effect of alkali ions on optical properties of flavins: Vibronic spectra of cryogenic m+lumichrome ions (m = li-cs) in the gas phase. *Phys. Chem. Chem. Phys.*, 20, 22148–22158. doi:10.1039/C8CP03950J

Sheldrick, A., Müller, D., Günther, A., Nieto, P., & Dopfer, O. (2018). Optical spectroscopy of isolated flavins: Photodissociation of protonated lumichrome. *Phys. Chem. Chem. Phys.*, 20, 7407–7414. doi:10.1039/C8CP00590G

Günther, A., Nieto, P., Müller, D., Sheldrick, A., Gerlich, D., & Dopfer, O. (2017). Berlintrap: A new cryogenic 22-pole ion trap spectrometer. *Journal of Molecular Spectroscopy*, 332, 8–15. Molecular Spectroscopy in Traps. doi:https://doi.org/10.1016/j.jms.2016.08.017