

Antonin Sulc PhD

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RESEARCH INTERESTS	Anomaly Detection, Compute Vision, NLP + LLM	
TECHNOLOGIES	PyTorch, Streamlit, HuggingFace, High-Performance (Cloud) Computing, R	
LANGUAGES	English (C1), German (B2), Czech (native), Russian/Ukrainian + Hebrew + Korean (reading)	
EDUCATION	University of Konstanz , Konstanz, Germany PhD., Artificial Intelligence - Computer Vision, 2015 - 2020 <ul style="list-style-type: none">• Thesis Topic: <i>Lightfield Analysis for non-Lambertian Scenes</i>• Grade: <i>Magna Cum Laude</i> (1.0)• Advisors: Prof. Dr. Bastian Goldluecke• 388 Citations (Google Scholar)• Publications on top-tier conferences (NeurIPS, CVPR, ICCV, BMVC)• My duties also involve supervision of students and supporting other departments in their tasks (Dpt. of Collective Behaviour) Czech Technical University , Prague, Czech Republic Bc., MSc., Artificial Intelligence, 2008 - 2014 <ul style="list-style-type: none">• Topic: <i>On parametric model creation with Neural Modeling Fields</i>, nominated as a master thesis of year 2014 in Czech Republic• Advisor: Dr. Michal Vavrecka	
WORK HISTORY	Co-Founder mindling.tech Consulting Start-up, Development of tailor made AI solutions Senior Data Scientist MCS DESY Hamburg Accelerator Control Systems, Fixed Term Contract, Real-time accelerator controls algorithms for anomaly detection at EuXFEL Improvement of DESY FAIR principles with LLM Visiting Researcher (PhD.) University of Haifa, Marine Imaging Lab A short term research stay, lead to one (oral) publication Supervisor: Dr. Tali Treibitz Visiting Researcher (PhD.) National Institute of Informatics in Tokyo, Imari Sato Lab A short term research stay, lead to two publications Supervisor: Prof. Dr. Imari Sato Software Engineer & Data Scientist Vendavo Inc. , Prague, Czech Republic Development of recommender systems Supervisor: Dr. Ludek Kopacek, Eric Bergerson	2022 - ∞ 2021 - 2024 2020 2019-2020 2014 - 2015
JOURNALS	<ul style="list-style-type: none">• A. Sulc, A. Eichler, and T. Wilsken. A data-driven anomaly detection on SRF cavities at the European XFEL. <i>Journal of Physics: Conference Series</i>. Vol. 2420. No. 1. IOP Publishing, 2023.• A. Sulc, O. Johannsen, B. Goldluecke. Recovery of Geometry, Natural Illumination and BRDF from a Single Light Field Image, In <i>Journal of the Optical Society of America A</i>, 2022,	

- S. Ishihara, **A. Sulc**, and I Sato, Depth estimation using spectrally varying defocus blur, In *Journal of the Optical Society of America A*, 2021,

PEER-REVIEWED PUBLICATIONS

1. **A. Sulc**, R. Kammering, A. Eichler, T. Wilksen PACuna: Automated Fine-Tuning of Language Models for Particle Accelerators at *ML4Physics Workshop at The Conference on Neural Information Processing Systems 2023*, New Orleans, USA
2. **A. Sulc**, I. Sato, B. Goldluecke, T. Treibitz. Towards Monocular Shape from Refraction, In BMVC, 2021, **oral (3.3% acceptance)**
3. S. Ishihara, **A. Sulc**, I. Sato. Depth from Spectral Defocus Blur. In *Proc. International Conference in Image Processing (ICIP)*, 2019
4. M. Zhu, A. Alperovich, O. Johannsen, **A. Sulc**, B. Goldluecke. An Epipolar Volume Autoencoder with Adversarial Loss for Deep Light Field Super-Resolution. In *Proc. Conference on Computer Vision and Pattern Recognition Workshop (CVPRW)*, 2019.
5. **A. Sulc**, O. Johannsen, B. Goldluecke. Inverse Lightfield Rendering for Shape, Reflection and Natural Illumination. In *Proc. 11th International Conference on Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR)*, 2017.
6. O. Johannsen, **A. Sulc**¹, N. Marniok, B. Goldluecke. Layered scene reconstruction from multiple light field camera views. In *Proc. Asian Conference on Computer Vision (ACCV)*, 2016.
7. **A. Sulc**, A. Alperovich, N. Marniok, B. Goldluecke. Reflection Separation in Light Fields based on Sparse Coding and Specular Flow. In *Proc. Vision, Modelling and Visualization (VMV)*, 2016.
8. O. Johannsen, **A. Sulc**, B. Goldluecke. Occlusion-aware depth estimation using sparse light field coding. In *Proc. German Conference on Computer Vision (GCPR)*, 2016.
9. O. Johannsen, **A. Sulc**, B. Goldluecke. What Sparse Light Field Coding Reveals About Scene Structure. In *Proc. Conference on Computer Vision and Pattern Recognition (CVPR)*, 2016.
10. O. Johannsen, **A. Sulc**, B. Goldluecke. Variational Separation of Light Field Layers. In *Proc. Vision, Modelling and Visualization (VMV)*, 2015.
11. O. Johannsen, **A. Sulc**, B. Goldluecke. On Linear Structure from Motion for Light Field Cameras. In *Proc. International Conference on Computer Vision (ICCV)*, 2015.

PUBLICATIONS

- **A. Sulc**, A. Eichler, T. Wilksen Log Anomaly Detection on EuXFEL Nodes at *The 19th Biennial International Conference on Accelerator and Large Experimental Physics Control Systems*, Cape Town, South Africa, **oral**
- **A. Sulc**, A. Eichler, T. Wilksen Textual Analysis of ICALEPCS and IPAC Conference Proceedings: Revealing Research Trends, Topics, and Collaborations for Future Insights and Advanced Search at *The 19th Biennial International Conference on Accelerator and Large Experimental Physics Control Systems*, Cape Town, South Africa, **oral**
- **A. Sulc**, O. R. Kammering, T. Wilksen. A Data-Driven Beam Trajectory Monitoring at the European XFEL at *International Conference in Particle Accelerators 2022*, Bangkok, Thailand

TALKS AND TUTORIALS

1. A Potential of Use of Language Processing in Accelerator Control Systems at *International Conference on Accelerator and Large Experimental Physics Control Systems 2023 in Cape Town, South Africa*
2. Machine Learning for Accelerator(s) R&D at *Any Light Particle Search Workshop at DESY in Hamburg, Germany*
3. Tutorial on Anomaly Detection at *ICFA Beam Dynamics Workshop in Chicago, IL, USA*
4. Current Development of Automated Accelerator Controls at *DESY 8th Matter and Technologies Annual Meeting in Hamburg, Germany*

¹Equal Contribution

5. Machine Learning for Anomaly Detection at *MLE-Summer School at TUHH in Hamburg, Germany*
6. Data-Driven Diagnosis at European XFEL at *CDCS Opening Symposium in Hamburg, Germany*
7. Light Field Analysis for non-Lambertian Scenes at *PixelClub - Technion in Haifa, Israel*
8. Multiobject Tracking Repetitive Patterns with Autoencoder at *Machine learning in the behavioral sciences Workshop at ASAB Summer School 2019 in Konstanz, Germany*
9. Lightfield Analysis for non-Lambertian Scenes at *The 11th Intelligent Machine Perception Seminar in Prague, Czech Republic*
10. Light-fields: Beyond the Lambertian at *The 38th Pattern Recognition and Computer Vision Colloquium in Prague, Czech Republic*
11. State-of-The-Art Computational Design and Fabrication