

Antonin Sulc PhD

	<div>+1 415 371 8154</div> <div>sulc.antonin@gmail.com</div> <div>http://sulcantonin.github.io</div>	<div>Berkeley</div> <div>U.S.A.</div>
RESEARCH INTERESTS	Computer Vision (Geometry), Anomaly Detection, Language (NLP, LLM)	
TECHNOLOGIES	Python, R, High-Performance (Cloud) Computing,	
LANGUAGES	English (C1), German (B2), Czech (native)	
EDUCATION	<div>University of Konstanz, Konstanz, Germany</div> <div>PhD., Artificial Intelligence - Computer Vision, 2015 - 2020</div> <div><div>- Grade: <i>Magna Cum Laude</i> (1.0)</div><div>- Advisors: Prof. Dr. Bastian Goldluecke</div><div>- 442 Citations (Google Scholar)</div><div>- Publications on top-tier conferences (CVPR, ICCV, BMVC)</div><div>- Contribution to projects outside scope of PhD topic (Dpt. of Collective Behavior)</div></div> <div>Czech Technical University, Prague, Czech Republic</div> <div>Bc.& MSc., Artificial Intelligence, 2008 - 2014</div> <div><div>- Nominated as a master thesis of year 2014 in Czech Republic</div></div>	
WORK	<div><div>Founder</div><div>mindling.tech</div><div>Consulting Start-up,</div><div>Development of tailor made AI solutions for various clients like tailor made multilingual search, digital twins, tracking</div></div> <div><div>Researcher</div><div>Berkeley Lab (LBNL) - UC Berkeley</div><div>Development of intelligent algorithms for accelerator controls</div></div> <div><div>Senior Data Scientist</div><div>Helmholtz Gemeinschaft</div><div>Real-time accelerator controls algorithms for anomaly detection</div><div>Improvement of corporate FAIR principles.</div></div> <div><div>Visiting Researcher (within PhD.)</div><div>University of Haifa - Marine Imaging Lab,</div><div>A short term research stay, help in the lab, development of algorithm for image processing in challenging environments (water)</div><div>Supervisor: Dr. Tali Treibitz</div></div> <div><div>Visiting Researcher (within PhD.)</div><div>National Institute of Informatics in Tokyo,</div><div>Imari Sato Lab</div><div>A short term research stay, help in the lab, development of algorithm for image processing in challenging environments (water)</div></div> <div><div>Software Engineer & Data Scientist</div><div>Vendavo Inc., Prague, Czech Republic</div><div>Development of recommender systems</div><div>Supervisor: Dr. Ludek Kopacek, Eric Bergerson</div></div>	<div>April 2022 - ∞</div> <div>January 2025 - January 2027</div> <div>May 2021 - October 2024</div> <div>March 2020 - Aug 2020</div> <div>Oct 2018 - March 2019</div> <div>Jan 2014 - Dec 2015</div>
JOURNALS	<div>1. A. Sulc, A. Eichler and T. Wilksen Unsupervised Log Anomaly Detection with Few Unique Tokens <i>IET Journal Information Security</i> (in review)</div> <div>2. 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.</div>	

3. **A. Sulc**, O. Johannsen, B. Goldluecke. Recovery of Geometry, Natural Illumination and BRDF from a Single Light Field Image, In *Journal of the Optical Society of America A*, 2022,
4. 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**, T. Hellert, R. Kammering, H. Houscher, J. M. St. John, Towards Agentic AI on Particle Accelerators at *ML4Physics Workshop at The Conference on Neural Information Processing Systems 2024*, New Orleans, USA
2. **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
3. **A. Sulc**, I. Sato, B. Goldluecke, T. Treibitz. Towards Monocular Shape from Refraction, In *BMVC*, 2021, **oral (3.3% acceptance)**
4. S. Ishihara, **A. Sulc**, I. Sato. Depth from Spectral Defocus Blur. In *Proc. International Conference in Image Processing (ICIP)*, 2019
5. 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.
6. **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.
7. 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.
8. **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.
9. O. Johannsen, **A. Sulc**, B. Goldluecke. Occlusion-aware depth estimation using sparse light field coding. In *Proc. German Conference on Computer Vision (GCPR)*, 2016.
10. 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.
11. O. Johannsen, **A. Sulc**, B. Goldluecke. Variational Separation of Light Field Layers. In *Proc. Vision, Modelling and Visualization (VMV)*, 2015.
12. 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

1. **A. Sulc**, P. Connor ChatQCD: Let Large Language Models Explore QCD , 42nd International Conference on High Energy Physics
2. P. Connor, **A. Sulc** Revealing Connections in QCD with Machine Learning , 42nd International Conference on High Energy Physics
3. **A. Sulc**, A. Eichler, T. Wilksen, Automated Anomaly Detection on European XFEL Klystrons at *International Conference in Particle Accelerators 2024*, Nashville, USA
4. **A. Sulc**, A. Eichler, G. Hartmann, T. Wilksen, J. St. John, F. Mayet, J. Maldonado, D. Ratner, J. Kaiser, V. Kain, T. Hellert, H. Hoschouer, Towards Unlocking Insights from Logbooks Using AI at *International Conference in Particle Accelerators 2024*, Nashville, USA
5. **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**

¹Equal Contribution

6. **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
7. **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. Addressing Challenges in Accelerator Operations with Artificial Intelligence *JeffersonLab Seminars*
2. Language Processing for Matter and Technology, *10th Annual MT Meeting*
3. Exploring the Strong Coupling Through Natural Language Processing at *1st Large Language Models in Physics Symposium (LIPS)*
4. Illuminating the Dark: Discovering in Dark Matter Research through Natural Language Processing at *1st Large Language Models in Physics Symposium (LIPS)*
5. Unlocking Insights from Logbooks using AI at DESY and BESSY at *9th Low Emittance Rings Workshop 2024*
6. Towards Unlocking Insights from Logbooks using AI at DESY and BESSY at *4th ICFA Beam Dynamics Mini-Workshop on Machine Learning for Particle Accelerators*
7. 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*
8. Machine Learning for Accelerator(s) R&D at *Any Light Particle Search Workshop at DESY in Hamburg, Germany*
9. Tutorial on Anomaly Detection at *ICFA Beam Dynamics Workshop in Chicago, IL, USA*
10. Current Development of Automated Accelerator Controls at *DESY 8th Matter and Technologies Annual Meeting in Hamburg, Germany*
11. Machine Learning for Anomaly Detection at *MLE-Summer School at TUHH in Hamburg, Germany*
12. Data-Driven Diagnosis at European XFEL at *CDCS Opening Symposium in Hamburg, Germany*
13. Light Field Analysis for non-Lambertian Scenes at *PixelClub - Technion in Haifa, Israel*
14. Multiobject Tracking Repetitive Patterns with Autoencoder at *Machine learning in the behavioral sciences Workshop at ASAB Summer School 2019 in Konstanz, Germany*
15. Lightfield Analysis for non-Lambertian Scenes at *The 11th Intelligent Machine Perception Seminar in Prague, Czech Republic*
16. Light-fields: Beyond the Lambertian at *The 38th Pattern Recognition and Computer Vision Colloquium in Prague, Czech Republic*
17. State-of-The-Art Computational Design and Fabrication

OTHER

- Scientific Chair of 5th ICFA Beam Dynamics Mini-Workshop on Machine Learning for Particle Accelerators.
- Program Chair of Foundations of Agentic Systems Theory (FAST) @ NeuralIPS 2025.
- Reviewer of CVPR, NeuralIPS