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Summary of Qualifications

Summary	AI/ML Research Scientist with 8+ years of experience developing trustworthy ML systems.
Expertise	Machine Learning, Trustworthy AI, Statistics, Signal Processing, Optimization
Awards	Swiss NSF Fellowship, Best Paper Award, Maths Olympiad Gold Medalist
Publications	Author of 17 journal articles in Machine Learning, Signal Processing, and Optimization.

Professional Experience

Nov'25 – Now **Machine Learning Researcher**, *Cradle*, Zürich, Switzerland
- Developing, validating, and deploying ML models for protein engineering
- Designing, training and fine-tuning foundation models using a combination of public and proprietary datasets from in-house lab and customer projects
- Creating robust methods for multi-property prediction and conditional sequence generation that can efficiently sample the protein design space to guide laboratory experiments.
- Designing and implementing active learning loops to close the design-build-test-learn cycle, ensuring new experimental data provides maximum information gain for model improvement.
- Researching and implementing models that integrate diverse data modalities, including protein structure, sequence, function, laboratory machine metadata, and other relevant contextual metadata.

Feb'25 – Oct'25 **Senior Machine Learning Scientist**, *Distran*, Zürich, Switzerland
- Next-generation AI-powered acoustic cameras for advanced scene understanding.
- Led the end-to-end ML lifecycle: model design, training, evaluation, implementation, and deployment.
- Collaborated closely with signal processing experts, and experimental physicists.
- Mentored an intern, fostering hands-on data processing skill development.

Jan'24 – Dec'24 **Staff Machine Learning Researcher**, *Daedalean AI*, Zürich, Switzerland
- Implemented trustworthy development and verification plans for ML models in safety-critical systems.
- Performed large-scale data analysis to enhance model interpretability and robustness.
- Improved model performance through an iterative cycle of evaluation, analysis, and refinement.
- Mentored one ML engineer and one software engineer, supporting technical growth and alignment.
- Collaborated cross-functionally with certification experts and aviation engineers, to ensure compliance.
- Actively contributed to hiring, participating in over 15 technical interview panels.

Oct'22 – Dec'23 **Machine Learning Researcher**, *Daedalean AI*, Zürich, Switzerland
- Laid the theoretical foundations for certifying deep neural networks in safety-critical applications.
- Derived quantitative requirements from qualitative safety criteria, ensuring compliance.
- Developed verification methodologies and risk-mitigation strategies for ML-based systems.
- Communicated complex theoretical results to certification authorities through technical reports and oral presentations.

Aug'17 – Oct'22 **Graduate Research Assistant**, *Biomedical Imaging Group, EPFL*, Lausanne, Switzerland
- Developed a unified mathematical optimization framework for supervised learning.
- Applied this framework to derive sparse learning schemes and uncover connections to deep learning.
- Implemented novel PyTorch modules enabling deep learning with trainable activation functions.
- Collaborated across disciplines, from pure mathematics to computational biology.
- Supervised 11 Master's students through theses, internships, and research projects.
- Authored 17 peer-reviewed journal papers in machine learning and applied mathematics.

Software Skills

Programming	Python, Rust, C++, MATLAB
ML Libraries	PyTorch, JAX, Scikit-learn, XGBoost, NumPy, HuggingFace
Dev& ML Ops	DVC, Kubernetes, Docker, AWS, Git, CI/CD
Data Visualization	Grafana, Matplotlib, Seaborn, Plotly
Data Analysis	SQL, Pandas, Polars
Front-end	Streamlit, HTML
Misc	LaTeX, Linux, Bash, Jsonnet

Professional Expertise

Mathematics	Optimization, Linear Algebra, Statistics, Probability Theory
Machine Learning	Deep Learning, Generative AI, Diffusion Models, Transformers
Soft Skills	Problem Solving, Communication, Creativity, Project Management, Team Leadership
Languages	English (C2), French (B1), German (B1), Persian (native), Azerbaijani (native)

Education

Aug'17 – Jun'22 **Ph.D. in Electrical Engineering**, École polytechnique fédérale de Lausanne (EPFL),
- Regression, Machine learning, Deep learning, Statistical Modeling

Sep'12 – Jun'17 **B.Sc. in Electrical Engineering**, Sharif University of Technology (SUT)
- Signal Processing, Optimization, Information Theory.

Sep'12 – Jun'17 **B.Sc. in Pure Mathematics**, SUT
- Probability Theory, Mathematical Analysis

Awards

2021 **Fellowship**, *Research Grant of 108,000 CHF*, Swiss National Science Foundations
- Grant for the project "Learning with Principles: Theory and Methods"

2019 **Best Student Paper Award**, *ICASSP**, Brighton, UK
- For the paper "Deep Spline Networks with Control of Lipschitz Regularity"
- 44th IEEE International Conference on Acoustics, Speech, and Signal Processing

2011 **Gold Medal**, *National Mathematical Olympiad*, Iran

Selected Publications (Check My Google Scholar for the Full List)

1st author **Deep Neural Networks with Trainable Activations and Controlled Lipschitz Constant**, *IEEE Transactions on Signal Processing*, 2020

1st author **Multikernel Regression with Sparsity Constraint**, *SIAM Journal on Mathematics of Data Science*, 2021

1st author **Measuring Complexity of Learning Schemes Using Hessian Schatten Total-Variation**, *SIAM Journal on Mathematics of Data Science*, 2023

1st author **Deep Spline Networks with Control of Lipschitz Regularity**, *International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2019

1st author **Linear Inverse Problems with Hessian-Schatten Total-Variation**, *Calculus of Variations and Partial Differential Equations*, 2024

1st author **Sparsest Univariate Learning Models Under Lipschitz Constraint**, *IEEE Open Journal of Signal Processing*, 2022

1st author **Duality Mapping for Schatten Matrix Norms**, *Numerical Functional Analysis and Optimization*, 2021

1st author **Wavelet Compressibility of Compound Poisson Processes**, *IEEE Transactions on Information Theory*, 2022

1st author **Generating Sparse Stochastic Processes Using Matched Splines**, *IEEE Transactions on Signal Processing*, 2020

1st author **Wavelet Analysis of the Besov Regularity of Lévy White Noises**, *Electronic Journal of Probability*, 2020

2nd author **Learning Continuous and Piecewise-Linear Functions with Hessian Total-Variation Regularization**, *IEEE Open Journal of Signal Processing*, 2022

2nd author **Convex Optimization in Sums of Banach Spaces**, *Applied and Computational Harmonic Analysis*, 2022

2nd author **Graphic: Graph-Based Hierarchical Clustering for Single-Molecule Localization Microscopy**, *IEEE International Symposium on Biomedical Imaging (ISBI)*, 2021

Personal Interests

Music, Cinema, Running, Yoga

References available upon request. November 7, 2025