Dr. Roshanak Zakizadeh

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PROFESSIONAL SUMMARY

Machine Learning Engineer with 8+ years of experience in deep learning, computer vision, and LLM application. Strong background in developing ML models using MLOps tools and cloud platforms.

TECHNICAL SKILLS

Programming Languages: Python, C/C++, MATLAB
AI & Machine Learning: TensorFlow, Keras, PyTorch, Scikit-learn, Neural Networks, Computer Vision, Classical ML
LLM & NLP: Transformers, Weaviate, CLIP, Vision-Language Models, Phoenix LLM Eval, LiteLLM, Pydantic
MLOps & Cloud: AWS, SageMaker, Docker, Kubernetes, Git, Poetry, UV, Weights & Biases, MLFlow, CI/CD, Model Monitoring
Data Analysis: Pandas, NumPy, Matplotlib, Looker
Specialized Technologies: OpenCV, HEVC, AVC, Image Fusion, HDR Processing
Project Management: Jira, Confluence, Asana

PROFESSIONAL EXPERIENCE

Freelance AI & Computer Vision Consultant Feb 2024 – Present

- Developing LLM-powered chatbots with integrated model evaluation and tracing using Phoenix and LiteLLM
- Developed multimodal retrieval systems using Weaviate, sentence-transformers, and Vision-Language models (CLIP) for cross-modal image-text matching

Senior Research Scientist March 2020 – Feb 2024
Onfido *London, UK*

- Implemented document detection and registration algorithms for image analysis
- Developed fraud anomaly detection solutions using deep learning, improving security compliance by *35%*
- Improved document image caption using multi-fusion techniques, reducing false rejection rate by 10%
- Conducted extensive error analysis of biometric product, cutting down 30% of false rejection cases.
- Collaborated with cross-functional teams to deploy production-ready AI systems at scale
- Established model monitoring and maintenance protocols for production biometric systems

Research Scientist Dec 2017 – March 2020
Cortexica *London, UK*

- Led development of visual search systems for major retailers (John Lewis, Nike), improving initial product performance by 60%
- Worked closely with client teams to translate business requirements into technical ML solutions
- Designed and implemented data cleaning pipelines and structured product annotations
- Optimized CNN-based product recognition models using TensorFlow/Keras with deployment to production
- Published research on fine-grained instance retrieval and visual search technologies

Research Engineer Nov 2016 – Dec 2017
V-NOVA *London, UK*

- Developed advanced video compression solutions supporting HDR & WCG content
- Built cross-platform tools in Python and C++ to optimize video coding standards
- Enhanced video processing algorithms for compression efficiency

Part-time Research Engineer Apr 2016 – Nov 2016
Spectral Edge *Cambridge, UK*

- Researched and developed computational photography solutions
- Implemented image fusion algorithms combining RGB and NIR images
- Created High Dynamic Range imaging solutions

Research Assistant Sept 2013 – Nov 2016
University of East Anglia *Norwich, UK*

- Developed image evaluation methodologies and metrics (cited over 100 times), conducted statistical analysis for both RGB and hyperspectral images
- Performed psycho-physical studies of white balance algorithms
- Applied classical machine learning techniques to image analysis

Education

PhD in Computer Science University of East Anglia, Norwich, UK | 2016

- Thesis: "Re-evaluation of Illuminant Estimation Algorithms in Terms of Reproduction Results and Failure Cases"
- Focus areas: Computer Vision, Machine Learning, Image Processing, Applied Statistics
- Full scholarship recipient

Master of Color in Informatics and Media Technology Université Jean Monnet, France | 2013

- Thesis: "Color Gamut Scalable Video Coding for SHVC"
- Full scholarship recipient

Master of Technology in Computer Science University of Hyderabad, India | 2011

B.Sc. in Computer Science Shahid Bahonar University of Kerman, Iran | 2007

NOTABLE PUBLICATIONS & PATENTS

- "Generalized anomaly detection." U.S. Patent Application No. 17/830,208
- "Improving the Annotation of DeepFashion Images for Fine-grained Attribute Recognition," arXiv preprint, 2018
- "The Reproduction Angular Error for Evaluating the Performance of Illuminant Estimation Algorithms", IEEE Trans. on Pattern Analysis and Machine Intelligence, 2017
- "A Hybrid Strategy For Illuminant Estimation Targeting Hard Images," IEEE International Conference on Computer Vision (ICCV) Workshop, 2015

ADDITIONAL EXPERIENCE

- **Consultancy**: Arian Milan Co., Kerman, Iran (remote) | 2016
- **Honorary Fellow**: University of East Anglia, Norwich, UK | 2018-2020
- **Visiting Researcher**: National University of Singapore, Singapore | Feb-Apr 2015
- **Research Intern**: Technicolor R&D France Snc, Rennes, France | Jan - July 2013

PROFESSIONAL SERVICES

- **Reviewer**: IEEE Transactions on Image Processing (TIP), since 2018
- **Reviewer**: Optical Society of America, since 2018
- **Reviewer**: Society for Imaging Science & Technology, since 2017