Ewa Magdalena Nowara, Ph.D.

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SUMMARY

Research Scientist with 8+ years of industry and academic research experience leading research and product development in Computer Vision and Deep Learning. Published in over 10 top tier venues (ICCV, ECCV, Biomedical Optics Express, Contemporary Oncology), owner of 2 patents. Passion and experience in oncology research. Undergraduate research experience in computational quantum chemistry and experimental biochemistry.

EDUCATION

- **Ph.D.** in Electrical and Computer Engineering, Rice University, Houston, TX **August 2015 - May 2021**
- **M.S.** in Electrical and Computer Engineering, Rice University, Houston, TX **August 2015 - May 2018**
- **B.S.** in Physics (Biophysics Concentration), St. Mary's University, San Antonio, TX **August 2011 - May 2015**

RELEVANT SKILLS

Machine Learning: SVM, Random Forest, CNN, Generative Models, Diffusion Models, GANs, VAEs, Transformers, ResNet, U-Net, LSTM, Attention Networks, Natural Language Processing (T5, CLIP), Self-Supervised Learning
Programming: Python, MATLAB, LATEX, Docker, Shell, HTML/CSS, (Some: C++, C, Java, R)
Tools: PyTorch, TensorFlow, Keras, OpenCV, Illustrator, 3D Printing, Soldering, Optics, Linux, Windows, Arduino
Math: Machine Learning, Computer Vision, Image & Signal Processing, Optimization, Graphics, Computational Imaging

PROFESSIONAL EXPERIENCE

Genentech, Prescient Design Team **July 2023 - Present**
Senior Machine Learning Scientist

- Develop machine learning approaches for drug design and discovery with a focus on oncology applications

Meta Reality Labs, Sunnyvale, CA **March 2022 - June 2023**
AI Research Scientist

- Implemented fast on-device object detection, tracking, and segmentation from third-person and egocentric views
- Trained VAE and Diffusion Models for human representation, 3D shape reconstruction, and avatar creation

Los Alamos National Laboratory, Los Alamos, NM **October 2020 - February 2021**
Research Intern (Theoretical Division, T-5), Mentor: Brendt Wohlberg

- Developed Self-Supervised Encoder-Decoder and Long-Short-Term Memory (LSTM) architectures to reconstruct high-resolution images obtained from multiple ptychographic measurements without access to ground truth

Microsoft Research, Redmond, WA **June 2019 - June 2020**
Research Intern (Human Understanding and Empathy Team), Mentors: Daniel McDuff, Mary Czerwinski

- Built a novel Convolutional Attention Neural Network to denoise temporal intensity signals from video
- Recovered physiological intensity variations from heavily compressed videos using supervised deep learning

Mitsubishi Electric Research Laboratories, Cambridge, MA **May 2017 - June 2019**
Research Intern (Computer Vision Team), Mentors: Tim Marks, Hassan Mansour

- Built hardware for a driver monitoring system using RGB and NIR cameras, custom illumination and optics
- Developed optimization and signal processing algorithms using RPCA, ADMM, face detection, face alignment, and face tracking to measure vital signs of a driver in a vehicle

ACADEMIC RESEARCH EXPERIENCE

Johns Hopkins University, Baltimore, MD **May 2021 - February 2022**
Postdoctoral Research Fellow in Electrical and Computer Engineering, Advisor: Prof. Ra ma Chellappa

- Built Vision Transformer, ResNet, and Triplet Network architectures for geo-localization from a single RGB image

Rice University, Houston, TX **May 2015 – May 2021**

Ph.D. Researcher in Electrical and Computer Engineering, Advisor: Ashok Veeraraghavaan

- Jointly developed hardware and algorithmic solutions to enable robust vital signs monitoring with cameras in the wild