EMRE BERAY BOZTEPE

COMPUTER VISION ENGINEER | DEEP LEARNING | IMAGE RECONSTRUCTION

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LinkedIn | GitHub | Portfolio | Open to relocation across Germany | Available Jan 2027

PROFESSIONAL SUMMARY

Computer vision and deep learning practitioner with M.Sc. Data Science and current applied research experience at CASUS/HZDR. Develops PyTorch pipelines for image-to-image reconstruction, diffusion/flow-based generative models and quantitative analysis across microscopy datasets, including 2D and 3D imaging.

TECHNICAL SKILLS

Vision & generative modeling: Python, PyTorch, CNNs, U-Net, pix2pix, diffusion models, CVDM, Conditional Flow Matching, GANs

Imaging & evaluation: image-to-image translation, reconstruction, classification, segmentation evaluation, preprocessing, augmentation, MSE, SSIM, PSNR, PCC, cell F1/recall

Tools & infrastructure: GPU/HPC, Git, Weights & Biases, TensorFlow, Linux, Docker; OpenCV (previous projects)

PROFESSIONAL EXPERIENCE

Research Assistant (Scultetus Early Career Fellow) | CASUS / HZDR, Görlitz, Germany

Mar 2026 - Present | Fixed-term contract through Dec 2026

- Adapted CVDM diffusion modeling to VIRVS label-free microscopy and implemented Conditional Flow Matching from scratch for virtual fluorescence reconstruction.
- Developed reusable PyTorch pipelines for image loading, normalization, augmentation, training and automated image-/cell-level evaluation across varied datasets.
- Benchmarked residual and non-residual approaches against U-Net, UNeXt2 and pix2pix using MSE, SSIM, PSNR, PCC, cell F1 and cell recall.
- Tested models on VIRVS, synthetic, organoid and other 2D/3D datasets; zero-mean diffusion improved denoising and selected foreground metrics, without consistent overall baseline gains.

Game Developer | NARCADE, Istanbul, Turkey

Jul 2022 - Oct 2023

- Developed and maintained 10+ mobile-game features in Unity/C#, resolving production issues and improving gameplay performance.
- Implemented advertising and monetization components in an Agile workflow using Git, Jira and code reviews.

SELECTED PROJECTS

AVESA: Multimodal Video Understanding | TensorFlow, OpenCV, ASR, NLP/NER - Led collaborative research project; coordinated teammates and implemented speech recognition, NER, rule mining and pipeline integration (first-author paper, 2022).

Small Language Models for Computation | Transformers, PyTorch - Explored compact language models for symbolic reasoning and structured evaluation during M.Sc. thesis.

EDUCATION

M.Sc. Data Science, University of Wrocław, Poland | Oct 2023 - Sep 2025 | GPA: 4.58/5.00 | Thesis: symbolic reasoning with small language models

B.Sc. Computer Engineering, Çanakkale Onsekiz Mart University, Turkey | Sep 2018 - Jun 2022 | GPA: 3.17/4.00

Erasmus+ Exchange, Lublin University of Technology, Poland | Computer Science | Feb - Jun 2021

ADDITIONAL INFORMATION

Research output: 3 AI/ML publications (2 first-author journal articles); research presenter at ISAS2022.

Languages: Turkish (native), English (C1), German (A1), Polish (A1).