Mehmet Saygın Seyfioğlu

Education

2019-2024 **PhD, Electrical and Computer Engineering**, *University of Washington*, Seattle, WA.
Dissertation: Towards Autonomous Histopathological Diagnosis: An End-to-End Multi-Agent AI Framework for Diagnostic Decision-Making and Interpretation
Advisors: Ranjay Krishna and Linda Shapiro

2015-2017 **MSc, Electrical and Computer Engineering**, *TOBB ETU*, Ankara, Turkey.
Computer vision research on elderly gait analysis and fall detection using radar systems

2011-2015 **BSc, Electrical and Computer Engineering**, *TOBB ETU*, Ankara, Turkey.

Academic Experience

2019-2024 **Research Assistant**, *University of Washington*, Seattle, WA.
- Led research on multimodal large language models for histopathology analysis. Built a large-scale image-text dataset from open-source medical videos
- Developed a state-of-the-art multimodal language model for histopathology that achieves state of the art accuracy in describing and analyzing histopathology images
- Created a novel multi-agent AI framework that simulates the clinical workflow, from triage to final diagnosis, surpassing human expert performance in skin cancer diagnosis

2023-2024 **Teaching Assistant**, *University of Washington*, Seattle, WA.
Taught Computer Vision and Artificial Intelligence courses at Paul G. Allen School of Computer Science & Engineering

Industry Experience

2024 Dec. - Present **Applied Scientist**, *Amazon*, Seattle, WA.
Leading the development of Amazon's first production-ready virtual try-on model.

Summer 2024 **Research Scientist Intern**, *Google*, Seattle, WA.
Developed TONE (Try-on Everything), a novel virtual try-on framework for multi-garment generation that fixes the bottleneck of paired data requirement by utilizing 3d viewpoint generation models. Worked on end-to-end development of TONE, achieving superior performance over Google's existing solutions and extending capabilities to accessories including shoes, hats, and bags

Summer 2023 **Applied Scientist Intern**, *Amazon*, Seattle, WA.
Led the development of a novel lightweight diffusion model called "Diffuse to Choose" for virtual try-all, managing the complete pipeline from dataset curation through implementation and training. Project's success drove team expansion and increased organizational investment in the technology. Research featured among Amazon Science's top 10 most viewed blog posts of 2024

Summer 2022 **Applied Scientist Intern**, *Amazon*, Seattle, WA.
Developed diffusion personalization model for e-commerce try-on

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Summer 2021 **Applied Scientist Intern**, *Amazon*, Seattle, WA.
Research on vision-language self-supervised pre-training for product understanding

Summer 2020 **Applied Scientist Intern**, *Amazon*, Seattle, WA.
Developed attention-based architectures for near-duplicate detection in product images

2016-2019 **Machine Learning Engineer**, *STM*, Ankara, Turkey.
Led vision and language projects for NATO applications under Dr. Erkut Erdem's mentorship

Awards & Recognition

2024 Population Health Initiative — AI Pilot Research Grant Award ($100,000)

2023 Microsoft Accelerate Foundation Models Research Program ($20,000)

2021 Garvey Institute for Brain Health Solutions Award ($100,000)

2019 Fulbright Fellowship ($100,000)

Publications

Google Scholar Profile: https://scholar.google.com.tr/citations?user=65TuoYUAAAAJ

Ph.D. Publications

1. **M. S. Seyfioglu***, F. Ghezloo*, R. Soraki*, W. O. Ikezogwo*, B. Li, T. Vivekanandan, J. G. Elmore, R. Krishna, L. Shapiro. PathFinder: A Multi-Modal Multi-Agent System for Medical Diagnostic Decision-Making Applied to Histopathology, ICCV 2025, https://pathfinder-dx.github.io/
2. **M. S. Seyfioglu**, A. Lugmayr, I. Yoo, Y. Jafarian, H. Peng, V. Ramakrishnan, Y. Li, I. Kemelmacher-Shlizerman. TONE: Try-On Everything, Under review
3. W.O. Ikezogwo, K, M, Zhang, **M. S. Seyfioglu**, F. Ghezloo, L. Shapiro, R. Krishna. MedicalNarratives: Connecting Medical Vision and Language with Localized Narratives, Neurips 2025, https://medical-narratives.github.io/
4. **M. S. Seyfioglu**, K. Bouyarmane, S. Kumar, A. Tavanaei, I. B. Tutar. Diffuse to Choose: Enriching Image Conditioned Inpainting in Latent Diffusion Models for Virtual Try-All, https://diffuse2choose.github.io
5. **M. S. Seyfioglu***, W.O. Ikezogwo*, F. Ghezloo*, R. Krishna, L. Shapiro. Quilt-LLaVA: Visual Instruction Tuning by Extracting Localized Narratives from Open-Source Histopathology Videos, CVPR 2024. https://quilt-llava.github.io
6. **M. S. Seyfioglu***, W.O. Ikezogwo*, F. Ghezloo*, D. Geva, F. S. Mohammed, P. K. Anand, R. Krishna, L. Shapiro. Quilt-1M: One Million Image-Text Pairs for Histopathology, Neurips Oral 2023. https://quilt1m.github.io/
7. **M. S. Seyfioglu**, K. Bouyarmane, S. Kumar, A. Tavanaei, I. B. Tutar. DreamPaint: Few-Shot Inpainting of E-Commerce Items for Virtual Try-On without 3D Modeling, arxiv, 2023.
8. **M. S. Seyfioglu***, W. O. Ikezogwo*, L. Shapiro. Multi-modal Masked Autoencoders Learn Compositional Histopathological Representations, Machine Learning for Health 2022.

9. **M. S. Seyfioglu**, Z. Liu, P. Kamath, S. Gangolli, S. Wang, T. Grabowski, and L. Shapiro. Brain-Aware Replacements for Supervised Contrastive Learning in Detection of Alzheimer's Disease, MICCAI Oral 2022.
10. **M. S. Seyfioglu**, T. Arici, T. Neiman, Y. Xu, S. Tran, T. Cilimbi, B. Zeng, and I. Tutar. MLIM: Vision-and-Language Model Pre-training with Masked Language and Image Modeling, arxiv, 2021.
11. N. Nuechterlein, B. Li, **M. S. Seyfioğlu**, S. Mehta, P. J. Cimino, and L. Shapiro. Leveraging Unlabeled Data for Glioma Molecular Subtype and Survival Prediction, ICPR, 2020.

Selected Publications from Earlier Work

1. S. Yagcioglu, **M. S. Seyfioglu**, B. Bardak, B. Citamak, S. Guldamlasioglu, A. Yuksel, E. I. Tatli, Detecting Cybersecurity Events from Noisy Short Text, NAACL, 2019
2. **M. S Seyfioglu**, B. Erol, S.Z. Gurbuz, and M.G. Amin, DNN transfer learning from diversified micro-Doppler for motion classification, IEEE Transactions on AES, 2018
3. **M. S Seyfioglu**, B. Erol, S.Z. Gurbuz, and M.G. Amin, Diversified radar micro-Doppler simulations as training data for deep residual neural networks, IEEE Radar Conference, 2018
4. **M. S Seyfioglu**, A. M. Ozbayoglu, S.Z. Gurbuz, Deep convolutional autoencoder for radar-based classification of similar aided and unaided human activities, IEEE Transactions on AES, 2017
5. **M. S Seyfioglu**, S.Z. Gurbuz, Deep neural network initialization methods for micro-Doppler classification with low training sample support, IEEE GRSL, 2017