Yusuf **Dalva**

RESEARCH & TEACHING ASSISTANT · PH.D. STUDENT

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Education

Ph.D. in Computer Science, Virginia Tech, Blacksburg, VA, United States   *Aug. 2023 - June 2027 (Expected)*

- Research focus: Controllability in diffusion models
- Under the supervision of Pinar Yanardag
- Related coursework: Embodied AI, Learning-based Computer Vision

M.S. in Computer Engineering, Bilkent University   *Sep. 2020 - June 2023*

- Thesis topic: Image-to-image Translation for Face Attribute Editing with Disentangled Latent Directions
- Under the supervision of Aysegul Dundar
- **Best Master Thesis Award** by IEEE Computer Society, Turkey Chapter
- Related coursework: Computer Vision, Deep Learning, Deep Generative Networks, Computer Graphics (CGPA: 4.00/4.00)
- Awarded **Department Scholarship** at the time of enrollment

B.Sc. in Computer Engineering, Bilkent University   *Sep. 2016 - June 2020*

- Graduation Project: DRIVision - Mobile-based Driving Assistance Solutions (**Data Science Award**)
- Related coursework: Object-Oriented Software Engineering, Algorithms, Operating Systems, Database Systems (CGPA: 3.67/4.00)
- Awarded **Merit Scholarship** in 2017, 2018, 2019

Publications

- **Y. Dalva**, K. Venkatesh, and P. Yanardag, *Fluxspace: Disentangled semantic editing in rectified flow transformers*, 2024. arXiv: `2412.09611` `[cs.CV]`. [Online]. Available: `https://arxiv.org/abs/2412.09611`

- **Y. Dalva**, Y. Li, Q. Liu, *et al.*, *Layerfusion: Harmonized multi-layer text-to-image generation with generative priors*, 2024. arXiv: `2412.04460` `[cs.CV]`. [Online]. Available: `https://arxiv.org/abs/2412.04460`

- **Y. Dalva**, H. Yesiltepe, and P. Yanardag, *Gantastic: Gan-based transfer of interpretable directions for disentangled image editing in text-to-image diffusion models*, 2024. arXiv: `2403.19645` `[cs.CV]`. [Online]. Available: `https://arxiv.org/abs/2403.19645`

- H. Yesiltepe, **Y. Dalva**, and P. Yanardag, "The curious case of end token: A zero-shot disentangled image editing using clip," *arXiv preprint arXiv:2406.00457*, 2024

- **Y. Dalva** and P. Yanardag, "NoiseCLR: A contrastive learning approach for unsupervised discovery of interpretable directions in diffusion models," in *IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR)* **(Oral - top 0.7%)**, 2024

- **Y. Dalva**, H. Pehlivan, O. I. Hatipoglu, *et al.*, "Image-to-Image Translation with Disentangled Latent Vectors for Face Editing," in *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2023

- **Y. Dalva**, S. F. Altındiş, H. Pehlivan, *et al.*, "Benchmarking the Robustness of Instance Segmentation Models," in *IEEE Transactions on Neural Networks and Learning Systems*, 2023

- **Y. Dalva**, S. F. Altındiş, and A. Dundar, "VecGAN: Image-to-Image Translation with Interpretable Latent Directions," in *European Conference on Computer Vision*, Springer, 2022, pp. 153–169

- H. Pehlivan, **Y. Dalva**, and A. Dundar, "StyleRes: Transforming the Residuals for Real Image Editing with StyleGAN," in *IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR)*, 2023

- S. F. Altindis, A. Meric, **Y. Dalva**, *et al.*, "Refining 3d human texture estimation from a single image," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2024

Experience

Research Scientist/Engineer Intern, Adobe Inc.   *May. 2024 - Aug 2024*

- Mentor: Yijun Li
- Project: Harmonized layered image generation with diffusion models for RGBA images

Teaching Assistant, Virginia Tech *Jan. 2024 - May 2024*
- Assisted Course: **AI Tools for Software Engineering**
- Assisted students on projects connecting **software engineering and ChatGPT-related tools**.

Teaching Assistant, Bilkent University *Sep. 2020 - June 2023*
- Won **Outstanding Teaching Assistant** award **3** times (2021, 2022, 2023)
- Gave tutorials on **Google Colab** and **PyTorch**
- Assisted Courses: **Introduction to Machine Learning**, Operating Systems, Computer Organization, **Algorithms and Programming I**

Software Engineer Intern, Atlassian, Opsgenie *July 2019 - Sep. 2019*
- Engaged in projects as a part of the Business Operations team
- Translated legacy records to Atlassian database
- Developed **AWS Lambdas** for subscription actions

Achievements, Honors & Awards

2023	**Best Master Thesis Award**
	Selected as the best master thesis by IEEE Computer Society Turkey Chapter
2021 - 2023	**Outstanding Teaching Assistant**
	Chosen as one of the three most successful teaching assistants in the Department of Computer Engineering of Bilkent University
2020	**Department Scholarship**
	Full scholarship by the Department of Computer Engineering of Bilkent University for M. Sc. studies
2020	**Data Science Award**
	Won the award for the project that best uses Data Science
2017 - 2019	**Merit Scholarship**
	Partial scholarship for B. Sc. studies has been awarded due to outstanding academic performance

Conferences & Presentations

IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR) *Seattle, WA*
ORAL + POSTER PRESENTATION: "NOISECLR: A CONTRASTIVE LEARNING APPROACH FOR UNSUPERVISED DISCOVERY OF *June 2024*
INTERPRETABLE DIRECTIONS IN DIFFUSION MODELS"

IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR) *Vancouver, Canada*
PAPER POSTER PRESENTATION: "STYLERES: TRANSFORMING THE RESIDUALS FOR REAL IMAGE EDITING WITH STYLEGAN" *June 2023*

European Conference on Computer Vision *Tel Aviv, Israel*
PAPER POSTER PRESENTATION: "VECGAN: IMAGE-TO-IMAGE TRANSLATION WITH INTERPRETABLE LATENT DIRECTIONS" *Sep. 2022*

Skills

Programming	Python, Java, JavaScript, C++, C, Bash, LaTeX
Data Handling	numpy, pandas, matplotlib, seaborn
Tools & Frameworks	Conda, PyTorch, Tensorflow, AWS
Languages	Turkish, English