

# Yusuf Dalva

RESEARCH & TEACHING ASSISTANT · PH.D. STUDENT

Department of Computer Science, Virginia Tech

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## Education

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### 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

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- **Y. Dalva**, G. G. Qian, M. Goldenberg, et al., *Canvas-to-image: Compositional image generation with multimodal controls*, 2025. arXiv: [2511.21691 \[cs.CV\]](#). [Online]. Available: <https://arxiv.org/abs/2511.21691>
- **Y. Dalva**, H. Yesiltepe, and P. Yanardag, “LoRAShop: Training-free multi-concept image generation and editing with rectified flow transformers,” in *Advances in Neural Information Processing Systems (Spotlight - top 3%)*, 2025
- **Y. Dalva**, K. Venkatesh, and P. Yanardag, “Fluxspace: Disentangled semantic editing in rectified flow models,” in *IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR)*, 2025
- **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**, Y. Li, Q. Liu, et al., “Layerfusion: Harmonized multi-layer text-to-image generation with generative priors,” in *NeurIPS 2025 Workshop on Space in Vision-Language Embodied AI (SpaVLE)*, 2025
- K. Venkatesh, **Y. Dalva**, I. Lourentzou, et al., “Context canvas: Enhancing text-to-image diffusion models with knowledge graph-based rag,” *arXiv preprint arXiv:2412.09614*, 2024
- **Y. Dalva**, H. Yesiltepe, and P. Yanardag, “Gan-based transfer of interpretable directions for disentangled image editing in text-to-image diffusion models,” in *NeurIPS 2025 Workshop on Generative and Protective AI for Content Creation (GenProCC)*, 2025
- 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**, 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. Altındış, 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. Altındış, 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

# Experience

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## Research Intern, Snap Inc.

May 2025 - Dec. 2025

- Mentors: Gordon Qian, Or Patashnik, Daniel Cohen-Or, Kfir Aberman, Jackson Wang, Sergey Tulyakov
- Developed a multi-subject diffusion framework enabling **spatially controllable composition** from canvas inputs and efficient multi-concept conditioning, incorporating **vision-language representations** to enhance **semantic understanding in generation**

## Research Scientist/Engineer Intern, Adobe Inc.

May 2024 - Aug. 2024

- Mentors: Yijun Li, Qing Liu, Nanxuan Zhao, Jianming Zhang, Zhe Lin
- Developed an **inference time harmonization** approach for layered image generators. Introduced the concept of **attention-level blending** for layered images to achieve layered compositions with interactions between layers.

## Teaching Assistant, Virginia Tech

Jan. 2024 - May 2025

- Assisted Courses: **AI Tools for Software Engineering, Intermediate Software Design and Engineering**
- Assisted students on projects on **software engineering principles** and connecting them with **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

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2025	<b>Amazon Fellowship</b> Selected as one of two fellows, as a part of Amazon - Virginia Tech Initiative in Efficient and Robust Machine Learning
2023	<b>Best Master Thesis Award</b> Selected as the best master thesis by IEEE Computer Society Turkey Chapter
2021 - 2023	<b>Outstanding Teaching Assistant</b> Chosen as one of the three most successful teaching assistants in the Department of Computer Engineering of Bilkent University
2020	<b>Department Scholarship</b> Full scholarship by the Department of Computer Engineering of Bilkent University for M. Sc. studies
2017 - 2019	<b>Merit Scholarship</b> Partial scholarship for B. Sc. studies has been awarded due to outstanding academic performance

# Conferences & Presentations

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## IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR)

Nashville, TN

POSTER PRESENTATION: "FLUXSPACE: DISENTANGLED SEMANTIC EDITING IN RECTIFIED FLOW MODELS"

June 2025

## IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR)

Seattle, WA

ORAL + POSTER PRESENTATION: "NOISECLR: A CONTRASTIVE LEARNING APPROACH FOR UNSUPERVISED DISCOVERY OF INTERPRETABLE DIRECTIONS IN DIFFUSION MODELS"

June 2024

## 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