Ozgur Kara

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No sponsorship is required to work in the U.S. • *Updated: November 4, 2026*

Research Overview: controllable, efficient, and safe generative modeling for visual content.

i. *Controllable generative modeling* — video generation (C.10, C.12, C.4, P.2), gaze generation (C.2, C.9), inverse imaging (C.1, C.14), and efficient tokenization (P.1)

ii. *Safe generative modeling* — adversarial attacks and defenses for diffusion models (C.6, C.8, P.5)

iii. *Multi-modal generative modeling* — agentic multi-modal slide generation (C.5, C.3)

iv. *Visual understanding* — 3D and video understanding (C.7, C.13, C.11), spatial reasoning (P.4), and affective computing (C.15, J.1)

Education

Doctor of Philosophy, Computer Science *(expected graduation in March/April 2027)* **2024–2027**
University of Illinois Urbana-Champaign (UIUC), Urbana, IL, USA **GPA: 4.00/4.00**
Advisors: Founder Prof. James M. Rehg (Rehg Lab), Prof. David Forsyth
Coursework: 3-D Vision, Deep Generative Models, Diffusion Flow Matching Models, Conversational AI

Doctor of Philosophy *(Transferred to UIUC)*, **Master of Science** in Computer Science **2022–2024**
Georgia Institute of Technology, Atlanta, GA, USA **GPA: 4.00/4.00**
Advisor: Founder Prof. James M. Rehg, Rehg Lab
Coursework: Convex Optimization, Mathematical Foundations of Machine Learning, Graphical Models in Machine Learning, Computational Data Analysis, Introduction to Graduate Algorithms, Machine Learning with Limited Supervision, Advanced Topics in Machine Learning

Bachelor of Science, Electrical & Electronics Engineering **2018–2022**
Bogazici University, Istanbul, Turkey **GPA: 3.92/4.00**
Advisors: Prof. Lale Akarun, Prof. Murat Saraclar
Coursework: Computer Vision, Machine Learning, How to Generate (Almost) Anything, Signals & Systems, System Dynamics & Control, Linear System Theory, Probability for Electrical Engineers, Numerical Methods
Undergraduate Thesis: Data Discovery and Domain Adaptation for Isolated Sign Language Recognition

Conference Publications

*equal contribution. †corresponding author. ★ first/co-first author. ♦ project lead/co-lead.

C.1 ★ **Exact Posterior Score Estimation for Solving Linear Inverse Problems**
Mammadov, A.*, **Kara, O.***, Oktay, K., Azangulov, I., Akan, A. K., Chung, H., Rehg, J. M., Teh, Y. W.
NeurIPS 2026, Poster — 25.7% acceptance rate (30709 submissions) | [Project Webpage] | [Paper] | [Code]

C.2 ♦ **ST-DiffEye: Diffusion-Based Continuous Gaze Generation via Joint Scanpath-Trajectory Modeling**
Zhao, B. N., **Kara, O.**†, Kim, J., Rehg, J. M.
NeurIPS 2026, Poster — 25.7% acceptance rate (30709 submissions)
[Project Webpage] | [Paper] | [Code] | [Models]

C.3 ♦ **ConvDeck: Conversational Paper-to-Slide Generation via Stage-Specific User Feedback**
Ozden, T. C.*, Sachidanand, V. S.*, Horoz, F.*, **Kara, O.**, Hakkani-Tür, D., Kim, J., Rehg, J. M.
EMNLP 2026 (Findings) — 29.72% acceptance rate (17669 submissions) | [Paper] | [Code]

C.4 ★ **Layer-Aware Video Composition via Split-then-Merge**
Kara, O., Chen, Y., Yang, M.-H., Rehg, J. M., Chu, W.-S.*, Tran, D.*
ECCV 2026 — 27.52% acceptance rate (10473 submissions) | [Project Webpage] | [Paper] | [Code]
Media: UIUC News | Featured on Official Google Channels: Instagram | X (Twitter)

C.5 ♦ **Narrative-Driven Paper-to-Slide Generation via ArcDeck**
Ozden, T. C.*, Sachidanand, V. S.*, Horoz, F.*, **Kara, O.**, Kim, J., Rehg, J. M.
ECCV 2026 — 27.52% acceptance rate (10473 submissions) | [Project Webpage] | [Paper] | [Code]

C.6 ★ **A Survey on Adversarial Attacks and Defenses for Diffusion Models Across Multiple Modalities**
Kara, O., Ozden, T. C., Horoz, F., Long, Z., Xue, H., Chen, Yipu, Akcin, O., Chen, Yongxin, Rehg, J. M.
LifeGenIP Workshop, ECCV 2026 | [Paper] | [Code]

C.7 **CoherentHand: Temporally Consistent 3D Hand Trajectory Synthesis with Semantic Motion Priors**
Boote, B., Kim, J., **Kara, O.**, Lee, S., Rehg, J. M.
CVPR 2026 (Findings) | [Paper]

C.8 ★ **DiffVax: Optimization-Free Image Immunization Against Diffusion-Based Editing**
Ozden, T. C.*, **Kara, O.***, Akcin, O., Zaman, K., Srivastava, S., Chinchali, S. P., Rehg, J. M.
ICLR 2026, Poster — 26.97% acceptance rate (19814 submissions) | [Project Webpage] | [Paper] | [Code]

C.9 ★ **DiffEye: Diffusion-Based Continuous Eye-Tracking Data Generation Conditioned on Natural Images**
Kara, O.*, Nisar, H.*, Rehg, J. M.
NeurIPS 2025, Poster — 24.5% acceptance rate (21575 submissions) | [Project Webpage] | [Paper] | [Code]

C.10 ★ **ShotAdapter: Text-to-Multi-Shot Video Generation with Diffusion Models**
Kara, O., Singh, K. K., Liu, F., Ceylan, D., Rehg, J. M., Hinz, T.
CVPR 2025, Poster — 22% acceptance rate (13008 submissions) | [Project Webpage] | [Paper]

C.11 **Leveraging Object Priors for Point Tracking**
Boote, B., Thai, N. A., Jia, W., **Kara, O.**, Stojanov, S., Rehg, J. M., Lee, S.
Instance-Level Recognition Workshop, ECCV 2024, Oral | [Paper] | [Code]

C.12 ★ **RAVE: Randomized Noise Shuffling for Fast and Consistent Video Editing with Diffusion Models**
Kara, O.*, Kurtkaya, B.*, Yesiltepe, H., Rehg, J. M., Yanardag, P.
CVPR 2024, Highlight — 2.8% acceptance rate (11532 submissions) | [Project Webpage] | [Paper] | [Code] | [Demo] | [Video]
Media: Voxel51 | NewGenAI | creativaier | JanRT | Future Thinker @Benji

C.13 ★ **Transfer Learning for Cross-dataset Isolated Sign Language Recognition in Under-Resourced Datasets**
Kindiroglu, A.*, **Kara, O.***, Ozdemir, O., Akarun, L.
IEEE FG 2024, Poster — 39% acceptance rate (299 submissions) | [Paper] | [Code]

C.14 ★ **ISNAS-DIP: Image-Specific Neural Architecture Search for Deep Image Prior**
Arican, M.*, **Kara, O.***, Bredell, G., Konukoglu, E.
CVPR 2022, Poster — 25% acceptance rate (8161 submissions) | [Paper] | [Code] | [Video]

C.15 ★ **Towards Fair Affective Robotics: Continual Learning for Mitigating Bias in Facial Expression and Action Unit Recognition**
Kara, O., Churamani, N., Gunes, H.
LEAP-HRI Workshop, HRI 2021, Poster | [Paper] | [Code]

JOURNAL PUBLICATIONS

J.1 **Domain-Incremental Continual Learning for Mitigating Bias in Facial Expression and Action Unit Recognition**
Churamani, N., **Kara, O.**, Gunes, H.
IEEE Transactions on Affective Computing, 2022 | [Paper] | [Code]

J.2 ★ **Molecular Index Modulation using Convolutional Neural Networks**
Kara, O., Yaylali, G., Pusane, A., Tugcu, T.
Nano Communication Networks, 2022 | [Paper] | [Code]

J.3 **Neuroweaver: A Platform for Designing Intelligent Closed-Loop Neuromodulation Systems**
Sarikhani, P., Hsu, H., **Kara, O.**, Kim, J., Esmaeilzadeh, H., Mahmoudi, B.
Brain Stimulation, 2021 | [Paper] | [Code]

UNDER REVIEW

*equal contribution. †corresponding author. ★ first/co-first author. ♦ project lead/co-lead.

P.1 ★ **BudgetPix: Compute-Adaptive Tokenization for Pixel-Space Image Diffusion**
Kara, O., Chen, Y., Watson, D., Forsyth, D., Rehg, J. M., Chu, W.-S., Tran, D.
Under Review, 2026 | [Project Webpage] | [Paper] | [Code] | [Models]

P.2 ♦ **SEGUE: Visual Signal as Exclusive Guidance for One-Shot Transition Effect Generation**
Kisa, E., Escorcia, V., Kim, J., Schwing, A., **Kara, O.**†, Rehg, J. M.†
Under Review, 2026 | [Project Webpage]

P.3 ♦ **Restoring Diversity in Distilled Image and Video Generators by Probing Activations**
Horoz, F., **Kara, O.**, Oktay, K., Akan, A. K., Kara, A., Bhattad, A.†, Rehg, J. M.†
Under Review, 2026

P.4 **LeRF: Learning Reference Coordinate Frames for Perspective Taking Reasoning**
Xiao, B., Jia, W., **Kara, O.**, Shen, T., Yang, Y., Lai, B., Kim, J., Rehg, J. M.
Under Review, 2026 | [Project Webpage] | [Paper] | [Code]

P.5 ★ **Immune2V: Image Immunization Against Dual-Stream Image-to-Video Generation**
Long, Z.*, **Kara, O.***, Xue, H.*, Chen, Y., Rehg, J. M.
Under Review, 2026 | [Project Webpage] | [Paper] | [Code]

P.6 **Towards Social AI: A Survey on Understanding Social Interactions**
Lee, S., Li, M., Lai, B., Jia, B., Ryan, F., Cao, X., **Kara, O.**, Boote, B., Shi, B., Yang, D., Rehg, J. M.
Under Review, 2025 | [Paper]

Industry Experience

Google, *Student Researcher*, Pixel Biometrics AI Research (BAIR) **2026 Summer – Present**
Advisor: Du Tran • *Collaborators:* Yujia Chen, Vincent Chu, Daniel Watson
– Efficient tokenization in generative modeling (P.1)

Google, *Research Intern*, Pixel Biometrics AI Research (BAIR) **2025 Summer – 2026 Spring**
Advisor: Du Tran • *Collaborators:* Yujia Chen, Vincent Chu, Prof. Ming-Hsuan Yang
– Layer-aware generative video composition (patent filed; published at ECCV 2026 C.4)
– Large-scale distributed training of a video diffusion transformer

Adobe, *Research Intern*, Firefly Team **2024 Summer – Fall**
Advisor: Tobias Hinz • *Collaborators:* Krishna Kumar Singh, Prof. Feng Liu, Duygu Ceylan
– Diffusion-transformer-based long-term multi-shot video generation (patent filed; published at CVPR 2025 C.10)
– Large-scale distributed training on an internal Adobe video model

AiTerna Technologies, *AI Engineer* **2020 – 2022**
– Graph-neural-network-based fashion recommender and virtual try-on pipeline on Google Cloud Platform (Elfai)

Sestek, *Summer Intern* **2021 Summer**
– Fake news detection with classical machine learning and transformer baselines on public datasets

ICRON, *Data Analyst Intern* **2019 Summer**
– Web-based log file visualization tool for data analysis (Pandas, scikit-learn)

Research Experience

UIUC / Georgia Tech, Rehg Lab | *Advisor:* Founder Prof. James M. Rehg **2022 Fall – Present**
– Controllable video generation (C.12, C.10, C.4, P.2)
– Safe generative modeling (C.6, C.8, P.5)
– Gaze trajectory generation (C.2, C.9)
– Inverse imaging (C.1, C.14)
– 3D understanding and point tracking (C.7, C.11)
– Perspective-taking spatial reasoning in VLMs (P.4)
– Agentic multi-modal slide generation (C.5, C.3)
– Survey on understanding social AI (P.6)

EPFL, Visual Intelligence and Learning Lab | *Advisor:* Asst. Prof. Amir Zamir **2022 Summer**
– Accepted to **Summer@EPFL** with a 2% admission rate
– Interpretability and explainability of Vision Transformer (ViT)

Bogazici University, Perceptual Intelligence Laboratory | *Advisor:* Prof. Lale Akarun **2021 Fall – 2022 Spring**
– Transfer learning for under-resourced sign language recognition dataset (C.13)

ETH Zurich, Computer Vision Lab | *Advisor:* Assoc. Prof. Ender Konukoglu **2021 – 2022**
– Training-free neural architecture search (NAS) for image restoration (C.14)

University of Tübingen, Explainable ML Group | *Advisors:* Prof. Zeynep Akata and Dr. Yongqin Xian **2021 Spring**
– Few-shot and generalized zero-shot learning for image classification using generative models

University of Cambridge, Affective Intelligence & Robotics Lab | *Advisor:* Prof. Hatice Gunes **2020 – 2021**
– Continual learning for enhancing fairness in facial expression recognition (J.1, C.15)

Bogazici University, Nanonetworking Research Group | *Advisor:* Prof. Ali Emre Pusane **2019 – 2020**
– Convolutional neural networks for molecular communication (J.2)

Academic Service

Workshop Organization: *Lead Organizer* (CVPR'25, CVPR'26) and *Co-organizer* (SIGGRAPH'25) of the AI for Visual Content Generation, Editing & Understanding (CVEU) Workshop

Outstanding Reviewer: ICCV'25 (top 2% of ∼11,859 reviewers), CVPR'25 (top 5% of ∼12,592), ECCV'24 (top 10% of ∼5,100)

Program Committee & Reviewer: CVPR'25/'26, ECCV'24/'26, ICCV'25, NeurIPS'23/'25/'26, ICML'24, ICLR'24/'25/'27, AAAI'25; IEEE Transactions on Affective Computing; ACM Transactions on Graphics

Invited Talks

BudgetPix: Compute-Adaptive Tokenization for Pixel-Space Image Diffusion | *Google DeepMind Reading Group* **2026**
Layer-Aware Video Composition via Split-then-Merge | *Voxel51 Computer Vision Meetup* [Record] **2026**
Text-to-Multi-Shot Video Generation with Diffusion Models | *Google Computer Vision Reading Group* **2025**
RAVE | *UIUC Computer Vision Group Lunch* **2024**
GenAI for Video: Diffusion-Based Editing and Generation | *Voxel51 Computer Vision Meetup* [Record] **2024**
Review of Basic Probability and Introduction to Diffusion Models | *More Than 101* [Post] **2023**

Scholarships

UIUC CS PhD Fellowship Addendum **2024–2026**
Georgia Tech ECE Departmental Fellowship **2022–2024**
Georgia Tech Otto F. and Jenny H. Krauss Fellowship **2022–2023**
Summer@EPFL Fully Funded Summer Internship Program **2022**
2205 TUBITAK[1] Undergraduate Scholarship **2022**
2247-C TUBITAK[1] Research Internship Scholarship **2021–2022**
Turkish Educational Foundation (TEV) Outstanding Success Scholarship **2019–2022**

Mentorship

Amreen Tejani *(UIUC, 1st Year Chemistry Pre-Med)* **Spring 2026**
Gaze generation on medical scans to assist clinical interpretation training.
Mentoring under departmental URAP program for freshman students.

Emir Kisa *(Bogazici University, BS EE)* **Spring 2026 – Present**
Video transition generation (P.2). Visiting in-person at UIUC during Summer 2026.

Furkan Horoz *(METU, BS CS → fal, Research Engineer)* **Fall 2025 – Present**
Exploring diversity in distilled diffusion models (P.3); narrative-driven slide generation (C.5, C.3). Visiting in-person at UIUC during Summer 2026.

Zeqian (Richard) Long *(UIUC, BS CS → Stanford, MS CS)* **Summer 2025 – Spring 2026**
Adversarial attacks on video diffusion models (P.5).

Aditya Ved, Nalin Kundu *(UIUC, BS CS)* **Spring 2025**
Developed deepfake prevention mobile app (URSA, Awarded 1st Place in Research Symposium).

Miguel Aenlle *(UIUC, BS CS)* **Fall 2024 – Fall 2025**
Google Summer of Code (GSoC) 2025 Contributor.
Real-time video editing mobile app (URSA). [Report]

Tarik Can Ozden *(Bogazici University, BS CS → UIUC, MS CS)* **Spring 2024 – Present**
Immunization model against deepfake attacks (C.8); narrative-driven slide generation (C.5, C.3).

[1] The Scientific and Technological Research Council of Turkey

Peter Guan *(UIUC, BS CS)* | Real-time video editing mobile app (URSA). [Report] **Fall 2024**

Sarper Yurtseven *(YTU, BS Maths. → Polimi, MS Comp. Maths.)* **Summer 2024**
Google Summer of Code (GSoC) 2024 Contributor.
Universal controller diffusion models. [Report]

Ioannis Valasakis *(King's College London, PhD)* | Google Summer of Code (GSoC) 2023 Contributor. [Report] **Summer 2023**

Mehul Sinha *(Manipal University, B.Tech → USC, MS CS)* **Summer 2022**
Google Summer of Code (GSoC) 2022 Contributor. [Report]

Awards & Achievements

Google Summer of Code Mentor Mentored students in 2022, 2023, 2024, and 2025 **2022–2025**

Accepted to International Computer Vision Summer School (ICVSS) **2023**
Top 25% of 614 applicants (∼154 students) [Project]

Participant, CIMPA Research School on Graph Structure and Complex Network Analysis **2023**

Top 50 Teams Worldwide (out of 5,000+ teams), Google Developer's Solution Challenge **2022**

3rd Place, Yildiz Bootcamp **2022**
Project: "Peter" — Pet finder app using image segmentation and deep learning [Project]
Directly invited to the Yildiz Technopark Pre-Incubation Program

Google Summer of Code, Selected Contributor **2021**
Project: "Graphical User Interface for OpenAI Gym" [Project]
Selected among 1,205 out of 6,991 applicants (17% acceptance rate)

3rd Place (10/172 projects), TUBITAK[1] Undergraduate Research Project Competition **2021**
Project: "Molecular Index Modulation using Convolutional Neural Networks" (J.2)

Top 10 Teams Regionwide, Google Solution Challenge *Project:* "Torch in Darkness" **2020**

1st Place (1/100 projects), TUBITAK[1] Undergraduate Research Project Competition **2020**
Project: "Joint Depth Estimation and Object Detection Software" [Project]

3rd Place (3/15 projects), IEEE METU Pixery Hackathon **2020**
Project: "Mobile Application for Blind People" [Project]

Finalist (out of 81 teams), Turkish Airlines Travel Datathon **2019**

180th out of 2 Million (top 0.009%), Turkish National University Entrance Exam **2018**

Republic Honour Award, Kadikoy Anadolu High School **2018**
Awarded to 1 student out of 340 annually

3rd Place Nationwide, TUBITAK[1] High School Research Project Competition **2018**
Project: "Drone for Landmine Detection Using GPS" [Project]

1st Place Regionwide, TUBITAK[1] High School Research Project Competition **2017**
Project: "Autonomous Hexapod for Helping Search Teams After Earthquake" [Project]

CS Bridge Program, Stanford-led two-week programming course, selected participant **2016**

Teaching

CS444 Deep Learning for Computer Vision, UIUC **2026 Spring**

ECE2026 Introduction to Signal Processing, Georgia Institute of Technology **2022 Fall**

Personal Details

Graduate Student Representative & Treasurer, Turkish Student Association at UIUC

Social Event Organizer, Turkish Student Association at Georgia Institute of Technology

Founder, Özgür's Philosophy — YouTube channel sharing academic life experiences with younger generations

Founder, Metakultur — blog platform covering developments in science and cultural activities

Member, AirBenders UAV Team, Bogazici University

Hiking enthusiast; visited 36/50 U.S. states, with a fondness for the Swiss Alps