

Deniz Engin

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Areas of Expertise

Computer vision, natural language processing, multimodal learning, video understanding

Professional Experiences

- **PhD Student** Inria – Rennes, France *Sep. 2020 – Feb. 2024*
 - Proposed a parameter-efficient zero-shot and few-shot video question answering method by adapting large-scale pretrained vision and language models to limited data, developing an approach that fine-tunes less than 1% of model parameters in the few-shot setting to enable easier deployment and more efficient resource utilization (Publication [1])
 - Proposed a long-form video question answering method using dialog summarization to understand long video content without relying on human-annotated data (Publication [2])
- **Researcher** InterDigital – Rennes, France *Sep. 2020 – Jun. 2022*
 - Worked on multimodal video understanding projects, including video captioning and video question answering, in collaboration during my PhD (Publication [2] and Patents)
- **R&D Engineer Specialist** Yapı Kredi Technology – Istanbul, Türkiye *Jan. 2018 – Mar. 2020*
 - Contributed to the evolution of AI in banking through document understanding projects, enhancing customer service and operational workflows from concept to deployment
 - Served as project lead and primary R&D engineer to propose and develop an offline signature detection and verification system, automating an ~250-hour monthly manual process (Publication [3])
 - Proposed and developed a multimodal document classification system, automating the classification of over 6.5 million transactions annually across more than 60 banking process types (Publication [4])
- **Research Intern** EPFL Signal Processing Lab (LTS5) – Lausanne, Switzerland *Jul. 2017 – Sep. 2017*
 - Proposed a cross-pose facial expression recognition method (Publication [5])
- **Researcher** ITU SiMiT Lab – Istanbul, Türkiye *Jul. 2016 – Jan. 2018*
 - Proposed a pioneering end-to-end single image dehazing method employing GANs (Publication [6])
 - Proposed a facial expression recognition method using transfer learning (Publication [7])

Education

- **Inria / University of Rennes** - Rennes, France *Sep. 2020 – Jun. 2024*
 - PhD, Computer Science*
 - Thesis:* Video question answering with limited supervision
 - Advisor:* Yannis Avrithis
 - Jury:* Ivan Laptev (Reviewer), Matthieu Cord (Reviewer), Josef Sivic, Karteek Alahari, Luce Morin
- **Istanbul Technical University** - Istanbul, Türkiye *Sep. 2014 – Nov. 2017*
 - M.Sc., Electronics Engineering*
 - Completed a five-month Erasmus exchange program at KU Leuven, Belgium
- **Istanbul Technical University** - Istanbul, Türkiye *Sep. 2009 – Jul. 2014*
 - B.Sc., Electronics Engineering*

Selected Publications

- 1 **D. Engin** and Y. Avrithis, “Zero-shot and few-shot video question answering with multi-modal prompts,” in *Proc. ICCV Workshops*, 2023. **[Oral Presentation]**.
- 2 **D. Engin**, F. Schnitzler, N. Q. Duong, and Y. Avrithis, “On the hidden treasure of dialog in video question answering,” in *Proc. ICCV*, 2021.
- 3 **D. Engin***, A. Kantarci*, S. Arslan, and H. K. Ekenel, “Offline signature verification on real-world documents,” in *Proc. CVPR Workshops*, 2020.
- 4 **D. Engin**, E. Emekligil, B. Oral, S. Arslan, and M. Akpınar, “Multimodal deep neural networks for banking document classification,” in *Proc. IMMM*, 2019. **[Best Paper Award]**.
- 5 **D. Engin**, C. Ecabert, H. K. Ekenel, and J.-P. Thiran, “Face frontalization for cross-pose facial expression recognition,” in *Proc. EUSIPCO*, 2018.
- 6 **D. Engin***, A. Genç*, and H. K. Ekenel, “Cycle-Dehaze: Enhanced cyclegan for single image dehazing,” in *Proc. CVPR Workshops*, 2018.
- 7 **D. Engin** and H. K. Ekenel, “Facial expression pair matching,” in *Proc. SIU*, 2017.

Patents

- Quang Khanh Ngoc Duong, **Deniz Engin**, Francois Schnitzler, Yannis Avrithis. “System and method for question answering.” U.S. Patent Application 18/292,252, filed July 27, 2022.
- **Deniz Engin**, Yannis Avrithis, Quang Khanh Ngoc Duong, Francois Schnitzler. “Device and method for question answering.” U.S. Patent Application 18/280,746, filed March 8, 2022.

Skills

- **Programming and Development Tools:** Python, C, Unix Shell Scripting, SQL, Git, Docker
- **Deep Learning Libraries:** PyTorch, TensorFlow, Keras
- **Languages:** Turkish (native), English (fluent), French (beginner)

Summer Schools

- ICVSS 2022 ■ International Computer Vision Summer School, Sicily, Italy. (10 – 16 Jul.)
- ELLIS 2021 ■ ELLIS Doctoral Symposium, Tübingen, Germany. (27 Sep. – 1 Oct.)
- PAISS 2021 ■ PRAIRIE/MIAI Artificial Intelligence Summer School, Online. (5 – 9 Jul.)

Awards and Achievements

- 2019 ■ Best Paper Award at IMMM 2019
- 2018 ■ ECCV Women in Computer Vision Workshop Travel Grant
- 2016-2017 ■ Research Scholarship from Scientific and Technological Research Council of Türkiye
- 2015-2016 ■ Exchange Student Grant from the Erasmus Program

Professional Activities

- 2023 ■ Reviewer for CVPR
- 2023 ■ Reviewer for ICCV
- 2022 ■ Reviewer for ECCV