EZGİ ÖZYILKAN

ezgi.ozyilkan@nyu.edu ⋄ https://ezgimez.github.io ⋄ Pronouns: She/They

RESEARCH INTERESTS

Information Theory   Deep Learning   Source Coding/Compression   Quantization

EDUCATION

NYU Tandon School of Engineering   September 2021 - Present
Ph.D. Electrical and Computer Engineering. Current GPA: 4.0.   *New York, NY*

· Advised by Prof. Elza Erkip.
· Relevant modules: *Information Theory, Foundations of Deep Learning, Probability and Stochastic Processes, Estimation & Detection, Introduction to Real Analysis.*

Imperial College London   September 2017 - June 2021
M.Eng. Electrical Electronics Engineering (Integrated Master's).   *London, UK*

· M.Eng. thesis topic: *Deep Stereo Image Compression with Decoder Side Information using Wyner Common Information*
  - Advised by Prof. Deniz Gündüz.

Lycée de Galatasaray   September 2012 - June 2017
Anatolian High School Diploma and French Baccalauréat.   *İstanbul, Turkey*

CONFERENCE PAPERS

Selim F. Yilmaz, Ezgi Ozyilkan, Deniz Gündüz, Elza Erkip, "Distributed Deep Joint Source-Channel Coding with Decoder-Only Side Information", *to appear at IEEE International Conference on Machine Learning for Communication and Networking* (ICMLCN), Stockholm, Sweden, May 2024, preprint available on arXiv.

Ezgi Ozyilkan, Elza Erkip, "Distributed Compression in the Era of Machine Learning: A Review of Recent Advances", *58th Annual Conference on Information Sciences and Systems (CISS)*, appeared as an invited paper, Princeton, New Jersey, March 2024.

Ezgi Ozyilkan, Johannes Ballé, Elza Erkip, "Learned Wyner–Ziv Compressors Recover Binning", *IEEE International Symposium on Information Theory* (ISIT), Taipei, Taiwan, June 2023.

Ezgi Ozyilkan*, Mateen Ulhaq*, Hyomin Choi, Fabien Racapé, "Learned Disentangled Latent Representations for Scalable Image Coding for Humans and Machines", *IEEE Data Compression Conference* (DCC), Salt Lake City, Utah, March 2023.

Nitish Mital*, Ezgi Ozyilkan*, Ali Garjani*, Deniz Gündüz, "Neural Distributed Image Compression with Cross-Attention Feature Alignment", *IEEE/CVF Winter Conference on Applications of Computer Vision* (WACV), Waikoloa, Hawai'i, January 2023.
-GitHub: https://github.com/ipc-lab/NDIC-CAM

Nitish Mital*, Ezgi Ozyilkan*, Ali Garjani*, Deniz Gündüz, "Neural Distributed Image Compression using Common Information", *IEEE Data Compression Conference* (DCC), Salt Lake City, Utah, March 2022.
- Video: https://www.youtube.com/watch?v=xtK06jh35Jw
- GitHub: https://github.com/ipc-lab/NDIC

WORKSHOP PAPERS

Ezgi Ozyilkan, Johannes Ballé, Elza Erkip, "Neural Distributed Compressor Does Binning", *Neural Compression Workshop @ ICML 2023*, Honolulu, Hawai'i, July 2023. **Selected for 1 of 4 contributed talks.**

PREPRINTS

Ezgi Ozyilkan, Johannes Ballé, Aaron B. Wagner, Elza Erkip, "A Survey on Neural Lossy Data Compression: Theory, Learning and Beyond", in preparation.

Ezgi Ozyilkan*, Fabrizio Carpi*, Siddharth Garg, Elza Erkip, "Neural Compress-and-Forward for the Relay Channel", in preparation.

Eyyup Tasci, Ezgi Ozyilkan, Oguzhan Kubilay Ulger, Elza Erkip, "Robust Distributed Compression with Learned Heegard-Berger Scheme", *submitted to IEEE International Symposium on Information Theory (ISIT) Workshop*, preprint available on arXiv.

Ezgi Ozyilkan, Johannes Ballé, Elza Erkip, "Neural Distributed Compressor Discovers Binning", *submitted to IEEE Journal on Selected Areas in Information Theory (JSAIT)*, preprint available on arXiv.

RESEARCH AND EXPERIENCE

InterDigital Video Lab June 2024 - August 2024
Incoming Graduate R&I Intern. Hosts: Jiahao Pang, Dong Tian *Manhattan, NY*

· Will work on 3D compression and generative models.

InterDigital AI Lab June 2022 - August 2022
Graduate R&I Intern. Hosts: Hyomin Choi, Fabien Racapé *Los Altos, CA*

· Worked on deep-learning-based image compression, focusing on scalability, and co-developed a patent.

- Hyomin Choi, Fabien Racapé, Ezgi Ozyilkan, Mateen Ulhaq, *Method or apparatus rescaling a tensor of feature data using interpolation filters*, International Patent Application No. PCT/US2023/034255, filed in October 2023.

IPC Lab, Imperial College London April 2020 - September 2020
Undergraduate Research Assistant. Advisor: Deniz Gündüz *London, UK*

· Worked on deep-learning-based joint source-channel coding.

Morgan Stanley June 2019 - August 2019
Business and Data Analyst. *London, UK*

TEACHING

ECE Department, NYU Tandon School of Engineering January 2022 - December 2022
Graduate (Head) Teaching Assistant. *New York, NY*

· Probability and Stochastic Processes (Fall 2022)
· Deep Learning (Spring 2022)

EEE Department, Imperial College London October 2019 - March 2021
Undergraduate Teaching Assistant. *London, UK*

· Communication Systems I (Spring 2021), Deep Learning (Spring 2021)
· Mathematics for Engineering (Spring 2020, Autumn 2020, Spring 2021)

HONORS AND AWARDS

Neural Compression Workshop @ ICML 2023	Best Reviewer Award, July 2023
International Symposium on Information Theory	Student Travel Grant, June 2023
North American School of Information Theory	Student Travel Grant, June 2023
UC Berkeley Simons Institute	Student Travel Grant, May 2023
NYU Tandon School of Engineering	Future Leader Ph.D. Fellowship, 2021-2023
Imperial College London	2021 Ivor Tupper Prize
Imperial College London	Dean's List, 2020 and 2021

SELECTED TALKS AND POSTERS

1. Neural Compression Workshop @ ICML 2023, "Neural Distributed Compressor Does Binning", Honolulu HI, July 2023. Contributed talk.

2. IEEE International Symposium on Information Theory (ISIT), "Learned Wyner-Ziv Compressors Recover Binning", Taipei Taiwan, June 2023. Contributed talk.

3. UC Berkeley Simons Institute's workshop on *Information-Theoretic Methods for Trustworthy Machine Learning*, "Learned Wyner–Ziv Compressors Recover Binning", Berkeley CA, May 2023. Invited.

4. IEEE Data Compression Conference (DCC), "Learned Disentangled Latent Representations for Scalable Image Coding for Humans and Machines", Salt Lake City UT, March 2023. Contributed talk.

5. IEEE Data Compression Conference (DCC), "Neural Distributed Image Compression using Common Information", Salt Lake City UT, March 2022. Contributed talk.

REVIEW ACTIVITIES

IEEE Transactions on Information Theory
IEEE Transactions on Communications
IEEE International Symposium on Information Theory (ISIT)
IEEE Data Compression Conference (DCC)
International Conference on Machine Learning (ICML)
Conference on Machine Learning and Systems (MLSys)

CONFERENCE AND WORKSHOP ORGANIZATIONS

Lead organizer of the "Learn to Compress" workshop at the International Symposium on Information Theory (ISIT) 2024. `https://learn-to-compress-workshop-isit.github.io/`

SKILLS

Software	LaTeX, Python, JAX, PyTorch, MATLAB
Languages	English (fluent), French (advanced), Turkish (native)

REFERENCES

Elza Erkip (PhD Advisor)	**Deniz Gündüz** (Integrated Master Advisor)
Institute Professor	Professor in Information Processing
NYU Tandon School of Engineering	Imperial College London
Electrical and Computer Engineering	Electrical and Electronic Engineering
✉ elza@nyu.edu	✉ d.gunduz@imperial.ac.uk