Hilmi Enes Egilmez, Ph.D.

CONTACT INFORMATION

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RESEARCH INTERESTS

Signal Processing, Machine Learning, Optimization, Multimedia, Data Science
Signal/data transformation, analysis and representation; graph-based modeling; deep learning; clustering; supervised learning; mathematical optimization; optimization algorithms; graph signal processing; image and video coding; multimedia networking; networked systems.

EDUCATION

University of Southern California, Los Angeles, USA

Ph.D. in Electrical Engineering (minor in Computer Science) *August 2012 - August 2017*
- Dissertation Title: "Graph-based Models and Transforms for Signal/Data Processing with Applications to Video Coding"
- Advisor: Prof. Antonio Ortega

Koc University, Istanbul, Turkey

M.Sc. in Electrical and Electronics Engineering *September 2010 - July 2012*
- Thesis Title: "Adaptive Video Streaming over OpenFlow Networks with QoS"
- Advisor: Prof. A. Murat Tekalp

B.Sc. in Electrical and Electronics Engineering *September 2006 - June 2010*
- Senior Project: "Real-Time Convex Optimization for Semidefinite Programs"

ACADEMIC EXPERIENCE

University of Southern California, Los Angeles, USA

Research Assistant, Electrical Engineering Department *August 2012 - August 2017*
- Research on graph-based models for signal processing and machine learning
  - Algorithms and optimization techniques for graph learning from data
  - Graph-based transform designs for image and video coding
  - Graph-based spectral methods for clustering and anomaly detection

Teaching Assistant, Electrical Engineering Department *August 2013 - December 2013*
- Shared responsibility for lectures, homework/lab assignments, and grades
  - EE 150: Engineering Computational Methods, Fall 2013

Koc University, Istanbul, Turkey

Research Assistant, Electrical and Electronics Engineering *September 2010 - July 2012*
- Research on multimedia networking and software-defined network systems
  - Developed a QoS routing mechanism for video streaming over software-defined network
  - Worked on deployment of the first software-defined network in Turkey
  - Involved in European FP-7 Project, *SARACEN*

Teaching Assistant, Electrical and Electronics Engineering *September 2010 - June 2012*
- Shared responsibility for lectures, homework/lab assignments, and grades
  - ELEC 201: Signals and Systems, Spring 2011, Spring 2012
  - ECOE 505: Linear Systems and Estimation Theory, Fall 2011
  - COMP 416: Computer Networks, Fall 2010

Industrial Experience

Qualcomm Technologies Inc., San Diego, USA

Staff Engineer, Multimedia R&D and Standards Group — *November 2020 - present*

- Research on machine learning techniques for video compression
  - Managing a group working on neural-network based solutions
  - Development of end-to-end deep neural network-based video compression
- Reporting directly to a Vice President (VP)
- Initiating and leading cross-departmental collaborations

Senior Engineer, Multimedia R&D and Standards Group — *August 2017 - November 2020*

- Research and development of novel techniques for video compression
  - Transformation, intra prediction, adaptive loop filtering, entropy coding, signaling
- Actively contributed to the Versatile Video Coding (VVC) standard
  - Co-author of about 100 standard contribution documents for VVC
- Mentoring graduate interns (Ph.D. and M.Sc. candidates) and new hires

Interim Engineering Intern, Multimedia R&D and Standards Group — *May - August 2016*

- Research on novel methods for video compression
- Co-author of 2 research papers on transform coding
- Manager: Dr. Marta Karczewicz, Mentor: Dr. Amir Said

LG Electronics Inc., San Jose, USA

Multimedia Intern, Mobile Research Lab — *May - August 2015*

- Research on new techniques for video compression
- Co-author of 2 research papers and 2 IDFs
- Mentor: Dr. Onur G. Guleryuz

Multimedia Intern, Mobile Research Lab — *May - August 2014*

- Research on new techniques for video compression
- Co-author of 1 research paper and 5 IDFs
- Mentor: Dr. Amir Said

Argela Technologies, Istanbul, Turkey

Consultant, R&D Department — *November 2010 - May 2012*

- Guided practical software-defined networking solutions for video streaming

Vestel Electronics, Manisa, Turkey

Intern, R&D Department — *July - August 2009*

- Developed an instant messaging client for Vestel's IPTVs

Schneider Electric, Istanbul, Turkey

Intern, Quality and Services Department — *July - August 2008*

- Investigated PLCs and Human-Machine Interfaces for automation systems

Publications

Citations: 1475, h-index: 16, i10-index: 19 (based on Google Scholar as of June 2021)

Book Chapters

1. H.E. Egilmez, Y.-H. Chao, A.Ortega, "Graph Spectral Image & Video Compression", in E. Magli and G. Cheung (Eds.), *Graph Spectral Image Processing*, Publisher: Wiley-ISTE, July 2021.

Journal Papers

1. H.E. Egilmez, A.K. Singh, M. Coban, M. Karczewicz, Y. Zhu, Y. Yang, A. Said, T.S. Cohen, "Transform Network Architectures for Deep Learning based End-to-End Image/Video Coding in Subsampled Color Spaces", *IEEE Open Journal on Signal Processing*, 2021.
2. X. Zhao, S.-H. Kim, Y. Zhao, H.E. Egilmez, M. Koo, S. Liu, J. Lainema, M. Karczewicz, "Transform Coding in the VVC Standard", *IEEE Transactions on Circuits and Systems for Video Technology*, 2021.
3. H.E. Egilmez, Y.-H. Chao, A. Ortega, "Graph-based Transforms for Video Coding", *IEEE Transactions on Image Processing*, vol. 29, pp. 9330-9344, 2020.
4. W.-J. Chien, M. Coban, J. Dong, H.E. Egilmez, N. Hu, M. Karczewicz, A. Said, V. Seregin, G. Van der Auwera, P. Bordes, F. Galpin, F. Le Léannec, T. Poirier, F. Urban, "Hybrid Video Codec Based on Flexible Block Partitioning with Extensions to the Joint Exploration Model", *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 30, no. 5, pp. 1346-1360, May 2020.
5. H.E. Egilmez, E. Pavez, A. Ortega, "Graph Learning from Filtered Signals: Graph System and Diffusion Kernel Identification", *IEEE Transactions on Signal and Information Processing over Networks*, vol. 5, no. 2, pp. 360-374, June 2019.
6. E. Pavez, H.E. Egilmez, A. Ortega, "Learning Graphs with Monotone Topology Properties and Multiple Connected Components", *IEEE Transactions on Signal Processing*, vol. 66, no. 9, pp. 2399-2413, May 2018.
7. H.E. Egilmez, E. Pavez, A. Ortega, "Graph Learning from Data under Structural and Laplacian Constraints", *IEEE Journal of Selected Topics in Signal Processing*, vol. 11, no. 6, pp. 825-841, Sept. 2017.
8. H.E. Egilmez, A.M. Tekalp, "Distributed QoS Architectures for Multimedia Streaming Over Software Defined Networks", *IEEE Transactions on Multimedia*, vol. 16, no. 6, pp. 1597-1609, Oct. 2014.
9. H.E. Egilmez, S. Civanlar, A.M. Tekalp, "An Optimization Framework for QoS-Enabled Adaptive Video Streaming over OpenFlow Networks", *IEEE Transactions on Multimedia*, vol. 15, no. 3, pp. 710-715, April 2013.

Conference Papers

1. H.E. Egilmez, O. Teke, A. Said, V. Seregin, M. Karczewicz, "Parametric Graph-based Separable Transforms for Video Coding", *IEEE International Conference on Image Processing (ICIP)*, Abu Dhabi, United Arab Emirates, 2020, pp. 1306-1310.
2. A. Said, H.E. Egilmez, Y.-H. Chao, "Low-Complexity Transform Adjustments for Video Coding" *IEEE International Conference on Image Processing (ICIP)*, Taipei, Taiwan, 2019, pp. 1188-1192 (*finalist of the Best Paper Award, and finalist of the Best Industrial Paper Award*).
3. X. Zhao, V. Seregin, A. Said, K. Zhang, H.E. Egilmez, M. Karczewicz, "Low-Complexity Intra Prediction Refinements for Video Coding" *Picture Coding Symposium (PCS)*, San Francisco, CA, USA, 2018, pp. 139-143.
4. E. Pavez, H.E. Egilmez, A. Ortega, "Learning Graphs with Monotone Topology Properties", *IEEE Global Conference on Signal and Information Processing (GlobalSIP)*, Montreal, Quebec, Canada, 2017, pp. 598-602.
5. H.E. Egilmez, E. Pavez, A. Ortega, "Graph Learning with Laplacian Constraints: Modeling Attractive Gaussian Markov Random Fields", *Asilomar Conference on Signals, Systems and Computers*, Pacific Grove, CA, USA, 2016 , pp. 1470-1474 (*Invited*).

6. X. Zhao, J. Chen, A. Said, V. Seregin, H.E. Egilmez, M. Karczewicz, "NSST: Non-Separable Secondary Transforms for Next Generation Video Coding", *Picture Coding Symposium (PCS)*, Nuremberg, Germany, 2016.
7. A. Said, X. Zhao, M. Karczewicz, H.E. Egilmez, V. Seregin, J. Chen, "Highly Efficient Non-Separable Transforms for Next Generation Video Coding", *Picture Coding Symposium (PCS)*, Nuremberg, Germany, 2016.
8. H.E. Egilmez, O. G. Guleryuz, J. Ehmann, S. Yea, "Row-Column Transforms: Low-complexity Approximation of Optimal Non-separable Transforms", *IEEE International Conference on Image Processing (ICIP)*, Phoenix, AZ, USA, 2016, pp. 2385-2389 (*recipient of the Best Student Paper Runner-up Award, 2nd place among the Best Student Paper Award finalists*).
9. Y.-H. Chao, H.E. Egilmez, A. Ortega, S. Yea, B. Lee, "Edge Adaptive Graph-Based Transforms: Comparison of Step/Ramp Edge Models for Video Compression", *IEEE International Conference on Image Processing (ICIP)*, Phoenix, AZ, USA, 2016, pp. 1539-1543.
10. H.E. Egilmez, Y.-H. Chao, A. Ortega, B. Lee, S. Yea, "GBST: Separable Transforms based on Line Graphs for Predictive Video Coding", *IEEE International Conference on Image Processing (ICIP)*, Phoenix, AZ, USA, 2016, pp. 2375-2379.
11. H.E. Egilmez, A. Ortega, O.G. Guleryuz, J. Ehmann, S. Yea, "An Optimization Framework For Combining Multiple Graphs", *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Shanghai, China, 2016, pp. 4114-4118.
12. I. Rotondo, G. Cheung, A. Ortega, H.E. Egilmez, "Designing Sparse Graphs via Structure Tensor for Block Transform Coding of Images", *APSIPA Annual Summit and Conference (APSIPA ASC)*, Hong Kong, 2015, pp. 571-574.
13. H.E. Egilmez, A. Said, Y.-H. Chao, A. Ortega, "Graph-based Transforms for Inter Predicted Video Coding", *IEEE International Conference on Image Processing (ICIP)*, Quebec City, Canada, 2015, pp. 3992-3996.
14. E. Pavez, H.E. Egilmez, Y. Wang, A. Ortega, "GTT: Graph Template Transforms with Applications to Image Coding", *Picture Coding Symposium (PCS)*, Cairns, Australia, 2015, pp. 199-203 (*recipient of the Honorable Mention Student Paper Award, 2nd place among the Best Student Paper Award finalists*).
15. H.E. Egilmez, A. Ortega, "Wavelet-based Compressed Spectrum Sensing for Cognitive Radio Wireless Networks", *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Brisbane, Australia, 2015, pp. 3157-3161.
16. H.E. Egilmez, A. Ortega, "Spectral Anomaly Detection using Graph-based Filtering for Wireless Sensor Networks", *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Florence, Italy, 2014, pp. 1085-1089.
17. J. Kim, F. Meng, P. Chen, H.E. Egilmez, D. Bethanabhotla, A.F. Molisch, M.J. Neely, G. Caire, A. Ortega, "Adaptive Video Streaming for Device-to-Device Mobile Platforms", *in Proceedings of ACM MobiCom*, Miami, FL, USA, 2013, pp. 127–130.
18. H.E. Egilmez, S.T. Dane, K.T. Bagci, A.M. Tekalp, "OpenQoS: An OpenFlow Controller Design for Multimedia Delivery with End-to-End Quality of Service over Software-Defined Networks", *APSIPA Annual Summit and Conference (APSIPA ASC)*, Los Angeles, USA, 2012.
19. H.E. Egilmez, S. T. Dane, B. Gorkemli, A.M. Tekalp, "OpenQoS: OpenFlow Controller Design and Test Network for Multimedia Delivery with Quality of Service", *Networked and Electronic Media Summit (NEM Summit)*, Istanbul, Turkey, 2012.
20. H.E. Egilmez, S. Civanlar, A.M. Tekalp, "A Distributed QoS Routing Architecture for Scalable Video Streaming over Multi-Domain OpenFlow Networks", *IEEE International Conference on Image Processing (ICIP)*, Orlando, Florida, USA, 2012, pp. 2237-2240.

21. H.E. Egilmez, B. Gorkemli, A.M. Tekalp, S. Civanlar, "Scalable Video Streaming over OpenFlow Networks: An Optimization Framework For QoS Routing", *IEEE International Conference on Image Processing (ICIP)*, Brussels, Belgium, 2011, pp. 2241-2244.

Pre-prints

1. A.K. Singh, H.E. Egilmez, R. Pourreza, M. Coban, M. Karczewicz T.S. Cohen, "A Combined Deep Learning based End-to-End Video Coding Architecture for YUV Color Space", *submitted*, 2021.

Awards

1. Finalist of the Best Paper Award at IEEE International Conference on Image Processing (ICIP), 2019 (among the 20 finalists out of 940 accepted papers).
2. Finalist of the Best Industry Paper Award at IEEE International Conference on Image Processing (ICIP), 2019 (among the top 5 industry papers).
3. Recipient of the Best Student Paper Runner-up Award at IEEE International Conference on Image Processing (ICIP), 2016 (2nd place among 910 accepted papers).
4. Recipient of the Honorable Mention Student Paper Award at Picture Coding Symposium (PCS), 2015 (2nd place among 59 accepted papers).

Patents

Granted U.S. Patents

1. H.E. Egilmez, V. Seregin, M. Coban, M. Karczewicz, "Low-frequency non-separable transform signaling based on zero-out patterns for video coding ", Patent No. US11032572B2, 2021.
2. H.E. Egilmez, Y.-H. Chao, A. Said, V. Seregin, M. Karczewicz, W.-J. Chien, "Coding adaptive multiple transform information for video coding", Patent No. US10986340B2, 2021.
3. A. Said, H.E. Egilmez, M. Karczewicz, "Efficient weighted probability estimation for binary arithmetic coding", Patent No. US10939115B2, 2021.
4. A. Said, H.E. Egilmez, M. Karczewicz, V. Seregin, "Minimization of transform memory and latency via parallel factorizations", Patent No. US10863199B2, 2020.
5. H.E. Egilmez, L. Zhang, V. Seregin, A. Said, M. Karczewicz, "Probability initialization and signaling for adaptive arithmetic coding in video coding", Patent No. US10869062B2, 2020.
6. A. Said, H.E. Egilmez, M. Karczewicz, V. Seregin, L. Zhang, X. Zhao, "Binary arithmetic coding with progressive modification of adaptation parameters", Patent No. US10791341B2, 2020.
7. H.E. Egilmez, S. Yea, A. Ortega, O.G. Guleryuz, J. Ehmann, "Method for encoding/decoding video signal by using single optimized graph", Patent No. US10715802B2, 2020.
8. A. Said, Y.-H. Chao, H.E. Egilmez, "Method and device for performing graph-based transform using generalized graph parameter", Patent No. US10666960B2, 2020.
9. M. Koo, S. Yea, B. Lee, A. Said, H.E. Egilmez, A. Ortega, "Method and device for processing a video signal by using an adaptive separable graph-based transform", Patent No. US10567763B2, 2020.
10. A. Said, H.E. Egilmez, "Method and apparatus for decoding/encoding video signal using transform derived from graph template", Patent No. US10412415B2, 2019.
11. A. Said, Y.-H. Chao, H.E. Egilmez, "Method and apparatus for performing graph-based prediction using optimization function", Patent No. US10425649B2, 2019.
12. A. Said, H.E. Egilmez, "Method and device for processing graph-based signal using geometric primitives", Patent No. US10382711B2, 2019.

Granted European Patents

1. A. Said, H.E. Egilmez, "Method and device for processing graph-based signal using geometric primitives", Patent No. EP3200156B1, 2020.
2. A. Said, Y.-H. Chao, H.E. Egilmez, "Method and apparatus for performing graph-based prediction using optimization function", Patent No. EP3211894B1, 2020.
3. A. Said, H.E. Egilmez, "Method and apparatus for decoding/encoding video signal using transform derived from graph template", Patent No. EP3211893B1, 2019.

Pending U.S. Patents (Published U.S. Patent Applications)

1. H.E. Egilmez, A. Said, V. Seregin, M. Karczewicz, "Parametric graph-based separable transforms for video coding", Publication No. US20210127137A1, 2021.
2. M. Karczewicz, M.Z. Coban, A. Nalci, H.E. Egilmez, "Signaling coding scheme for residual values in transform skip for video coding", Publication No. US20210112279A1, 2021.
3. H.E. Egilmez, C.-T. Hsieh, V. Seregin, M. Karczewicz, "Low-frequency non-separable transform (lfnst) simplifications ", Publication No. US20210099702A1, 2021.
4. A. Nalci, H.E. Egilmez, Y.-H. Chao, M.Z. Coban, H. Wang, M. Karczewicz, "Mode dependent block partition for lossless and mixed lossless and lossy video coding", Publication No. US20210092376A1, 2021.
5. H.E. Egilmez, A. Said, V. Seregin, M. Karczewicz, "Transform unit design for video coding", Publication No. US20210092381A1, 2021.
6. A.K. Ramasubramonian, G. Van der Auwera, V. Seregin, H.E. Egilmez, M. Karczewicz, "Scaling matrices and signaling for video coding", Publication No. US20210092408A1, 2021.
7. H.E. Egilmez, V. Seregin, M. Karczewicz,"Low-frequency non-separable transform (LFNST) signaling", Publication No. US20210058642A1, 2021.
8. H.E. Egilmez, N. Hu, V. Seregin, M. Karczewicz, "Nonlinear extensions of adaptive loop filtering for video coding", Publication No. US20200404335A1, 2020.
9. A. Nalci, H.E. Egilmez, V. Seregin, M. Coban, M. Karczewicz, "Context modeling for low-frequency non-separable transformation signaling for video coding ", Publication No. US20200404276A1, 2020.
10. N. Hu, H.E. Egilmez, V. Seregin, M. Karczewicz, "Adaptive loop filter signalling", Publication No. US20200404263A1, 2020.
11. A. Nalci, H.E. Egilmez, V. Seregin, M. Coban, M. Karczewicz, "Transform and last significant coefficient position signaling for low-frequency non-separable transform in video coding", Publication No. US20200396487A1, 2020.
12. N. Hu, V. Seregin, H.E. Egilmez, M. Karczewicz, "Clipping indices coding for adaptive loop filter in video coding", Publication No. US20200396452A1, 2020.
13. H.E. Egilmez, V. Seregin, A. Said, M. Karczewicz, "Extended multiple transform selection for video coding", Publication No. US2020322636A1, 2020.
14. H.E. Egilmez, A. Said, V. Seregin, M. Karczewicz, "Implicit transform selection in video coding", Publication No. US2020296370A1, 2020.
15. N. Hu, V. Seregin, M. Karczewicz, H.E. Egilmez, "Fixed filters with non-linear adaptive loop filter in video coding", Publication No. US2020314423A1, 2020.
16. V. Seregin, C.-H. Hung, N. Hu, H.E. Egilmez, M. Karczewicz, "Simplification of sub-block transforms in video coding Publication No. US2020288130A1, 2020.
17. M. Karczewicz, H.E. Egilmez, Predictive coefficient coding", Publication No. US2020260098A1, 2020.

18. H.E. Egilmez, V. Seregin, A. Said, M. Karczewicz, "Secondary transform designs for partitioned transform units in video coding", Publication No. US2020252622A1, 2020.
19. N. M. Shlyakhov, D. Rusanovskyy, N. Hu, H.E. Egilmez, V. Seregin, M. Karczewicz, "Buffer update of stored adaptive loop filter (alf) coefficients for random access coding in video coding", Publication No. US2020213589A1, 2020.
20. H.E. Egilmez, V. Seregin, A. Said, M. Karczewicz, "Tree-based transform unit (tu) partition for video coding", Publication No. US2020204833A1, 2020.
21. V. Seregin, A. Gadde, H.E. Egilmez, M. Karczewicz, A. Said, "Adaptive multiple transform coding", Publication No. US2020099924A1, 2020.
22. H.E. Egilmez, N. Hu, V. Seregin, W.-J. Chien, M. Karczewicz, "Temporal prediction of adaptive loop filter parameters with reduced memory consumption for video coding", Publication No. US2020084444A1, 2020.
23. Y.-H. Chao, A. Said, H.E. Egilmez, V. Seregin, M. Karczewicz, "Transform variations of multiple separable transform selection", Publication No. US2020021852A1, 2020.
24. A. Said, H.E. Egilmez, M. Karczewicz, V. Seregin, "Multiple transforms adjustment stages for video coding", Publication No. US2019306522A1, 2019
25. H. E. Egilmez, J. Ehmann, O.G. Guleryuz, "Method and device for encoding/decoding video signal by using optimized conversion based on multiple graph-based model", Publication No. US2020288129A1, 2020.
26. O.G. Guleryuz, H. E. Egilmez, J. Ehmann, "Device and method for performing transform by using singleton coefficient update", Publication No. US2020092553A1, 2020.
27. A. Said, H.E. Egilmez, Y.-H. Chao, "Method and apparatus for adaptively encoding, decoding a video signal based on separable transform", Publication No. US2017280140A1, 2017.

STANDARD CONTRIBUTIONS

Call-for-Proposal (CfP) Response Contributions

1. Y.-W. Chen, W.-J. Chien, H.-C. Chuang, M. Coban, J. Dong, H.E. Egilmez, N. Hu, M. Karczewicz, A. Ramasubramonian, D. Rusanovskyy, A. Said, V. Seregin, G. Van Der Auwera, K. Zhang, L. Zhang, P. Bordes, Y. Chen, C. Chevance, E. François, F. Galpin, M. Kerdranvat, F. Hiron, P. de Lagrange, F. Le Léannec, K. Naser, T. Poirier, F. Racapé, G. Rath, A. Robert, F. Urban, T. Viellard, "Description of SDR, HDR and 360° video coding technology proposal by Qualcomm and Technicolor – low and high complexity versions", JVET-J0021, San Diego, CA, USA, April, 2018.
2. P. Bordes, Y. Chen, C. Chevance, E. François, F. Galpin, M. Kerdranvat, F. Hiron, P. de Lagrange, F. Le Léannec, K. Naser, T. Poirier, F. Racapé, G. Rath, A. Robert, F. Urban, T. Viellard, Y. Chen, W.-J. Chien, H.-C. Chuang, M. Coban, J. Dong, H.E. Egilmez, N. Hu, M. Karczewicz, A. Ramasubramonian, D. Rusanovskyy, A. Said, V. Seregin, G. Van Der Auwera, K. Zhang, L. Zhang, "Description of SDR, HDR and 360° video coding technology proposal by Qualcomm and Technicolor – medium complexity version", JVET-J0022, San Diego, CA, USA, April, 2018.
3. Y.-W. Chen, W.-J. Chien, H.-C. Chuang, M. Coban, J. Dong, H.E. Egilmez, N. Hu, M. Karczewicz, A. Ramasubramonian, D. Rusanovskyy, A. Said, V. Seregin, G. Van Der Auwera, K. Zhang, L. Zhang, P. Bordes, Y. Chen, C. Chevance, E. François, F. Galpin, M. Kerdranvat, F. Hiron, P. de Lagrange, F. Le Léannec, K. Naser, T. Poirier, F. Racapé, G. Rath, A. Robert, F. Urban, T. Viellard, "Partition only software of the video coding technology proposal by Qualcomm and Technicolor", JVET-J0075, San Diego, CA, USA, April, 2018.

Proposals

4. B. Ray, L. Kerofsky, M. Coban, M. Karczewicz, H. Egilmez, V. Seregin,"Enhanced Intra MTS and LFNST for compression beyond VVC", JVET-V0116, Apr., 2021.
5. H.E. Egilmez, A.K. Singh, M. Coban, M. Karczewicz, "A DNN Architecture for Intra-Frame Coding in YUV 4:2:0 format with Cross-Component Prediction", JVET-U0079, Jan., 2021.
6. A.K. Singh, H.E. Egilmez, M. Coban, M. Karczewicz, "Balancing Luma-Chroma Channel Coding for DNN-based Intra-Frame Coding in JVET-U0079", JVET-U0080, Jan., 2021.
7. Y.-J. Chang, C.-C. Chen, J. Chen, J. Dong, H.E. Egilmez, N. Hu, H. Huang, M. Karczewicz, J. Li, B. Ray, K. Reuze, V. Seregin, N. Shlyakhov, L. Pham Van, H. Wang, Y. Zhang, Z. Zhang, "Compression efficiency methods beyond VVC", JVET-U0100, Jan., 2021.
8. A.K. Singh, H.E. Egilmez, M. Coban, M. Karczewicz, "A study of handling YUV420 input format for DNN-based video coding", JVET-T0123, Oct., 2020.
9. A. Nalci, H.E. Egilmez, M. Coban, V. Seregin, M. Karczewicz, "AHG14: Residual coding constraints for transform skip blocks", JVET-R0083, Apr., 2020.
10. M. Karczewicz, M. Coban, A. Nalci, H.E. Egilmez, V. Seregin, T.-C. Ma, X. Xiu, Y.-W. Chen, H.-J. Jhu, X. Wang, "AHG14: On signalling for lossless coding", JVET-R0084, Apr., 2020.
11. M.G. Sarwer, Y. Ye, J. Luo, A. Nalci, H.E. Egilmez, M. Coban, V. Seregin, M. Karczewicz,"AHG11 /AHG14: On sign data hiding of transform skip block", JVET-R0116, Apr., 2020.
12. H.E. Egilmez, A. Nalci, V. Seregin, W.-J. Chien, M. Karczewicz, "Removal of redundant LFNST index signalling", JVET-R0234, Apr., 2020.
13. H.E. Egilmez, A. Nalci, V. Seregin, W.-J. Chien, T. Hsieh, M. Karczewicz, "Removal of LFNST for chroma components", JVET-R0235, Apr., 2020.
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PROFESSIONAL ACTIVITIES

- Member of Joint Video Experts Team (JVET), 2017-present
- Member of Joint Collaborative Team on Video Coding (JCT-VC), 2017-present
- Member of Moving Picture Experts Group (MPEG), 2017-present
- Member of Video Coding Experts Group (VCEG), 2017-present
- Member of International Telecommunication Union - Telecommunication Standardization Section (ITU-T), 2017-present
- Member of International Committee for Information Technology Standards, 2017-present
- Member of Institute of Electrical and Electronics Engineers (IEEE), 2011-present
- Member of IEEE Signal Processing Society (SPS), 2011-present
- Reviewer of IEEE Transactions on Signal Processing
- Reviewer of IEEE Transactions on Image Processing
- Reviewer of IEEE Journal of Selected Topics in Signal Processing
- Reviewer of IEEE Transactions on Signal and Information Processing over Networks
- Reviewer of Journal of Machine Learning Research
- Reviewer of IEEE Transactions on Multimedia
- Reviewer of IEEE Signal Processing Letters
- Reviewer of IEEE Communications Letters