Olgica Milenkovic

ECE Department
U of Illinois, Urbana-Champaign
Coordinated Science Laboratory 311
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EDUCATION

Ph.D. in Electrical Engineering: Systems, Communications, May 2002
University of Michigan, Ann Arbor, Michigan
Major Area: Communications; **Minor Area**: Signal Processing

> **Dissertation:** *Combinatorial Problems in Analysis of Algorithms and Coding Theory*
> **Dissertation Advisor:** Professor Kevin J. Compton.
> **Relevant courses:** *Digital Communication and Channel Coding Theory, Source Coding, Probability and Random Processes, Estimation, Filtering and Detection, Digital Signal Processing, Information Theory.*

M.S. in Mathematics, Sep. 2001
University of Michigan, Ann Arbor, Michigan

> **Dissertation:** *Multidimensional Modulation Codes for Magnetic and Optical Recording*
> **Dissertation Advisor:** Professor Bane Vasic (Currently at the University of Arizona, Tucson)
> **Relevant courses:** *Analog and Digital Communication Channels, Coding for Storage Devices, Satellite Antennas and Systems, Microwave Theory, Acoustical Devices.*

B.S. in Electrical Engineering, 1996
University of Nis, Nis, Yugoslavia

> **Dissertation:** *Channel Capacity of a New Class of Modulation Codes*
> **Dissertation Advisor:** Professor Bane Vasic (Currently at the University of Arizona, Tucson)

APPOINTMENTS

Visiting Professor, EPFL, Summer 2016.

Visiting Professor, ENSEA, Cergy Pontoise, Paris, Spring 2016.

Long-term Visitor, NEXUS Program, Institute Henri Poincare, Spring 2016.

Visiting Professor, Harvard University, Fall 2015.

Long-term Visitor, Simons Institute, UC Berkeley, Spring 2015.

Visiting Professor, 2006-2007, Center for Information Theory and Applications, University of California, San Diego.

Consultant, Bell-Labs, Lucent Technologies, May 2005-May 2006.

Discrete Mathematics and Computer Science (DIMACS) Visitor, May 2005-July 2005.

ACADEMIC EXPERIENCE

August 2015 - current: Professor, University of Illinois, Urbana-Champaign.

August 2010 - August 2015: Associate Professor, University of Illinois, Urbana-Champaign.

August 2007 - August 2010: Assistant Professor, University of Illinois, Urbana-Champaign.

August 2002 - January 2006: Assistant Professor, ECE Department, University of Colorado, Boulder.

TEACHING:

Probability theory (undergraduate level), Fall 2009, Spring 2011, Spring 2011, Fall 2014.
Noise and Random Processes, Fall 2002, 2017, Spring 2015, 2017.
Big Data (undergraduate level), Spring 2014, Fall 2014, Spring 2015, Fall 2016.
Noise and Random Processes (ECE534), Spring 2012, Fall 2014.
Source Coding, Spring 2003, 2005.
Information Theory and Coding, Fall 2003, 2011, 2019.
Theory and Practice of Error-Control Coding, Spring 2004.
Telecommunications I, Fall 2004.
Information Theory for Molecular Biology, Fall 2005.
Theory and Practice of Error-Control Coding, Spring 2006.
Error-Control Coding, Fall 2007, Fall 2016.
Special topics in Information Theory for Molecular Biology, Spring 2008.
Detection and Estimation Theory, Fall 2009.

RESEARCH:

⋄ **Machine Learning - Hypergraph Analysis:** Spectral Clustering, Inhomogeneous Clustering, Applications in Subspace Segmentation and Rank Aggregation.
⋄ **Analysis of Algorithms:** Binning, Symbolic Computations.
⋄ **Bioinformatics and Synthetic Biology:** Gene Regulatory Networks, Gene Prioritization, Epigenetics, Genomic Data Compression, Coding for Synthetic Biology.
⋄ **Coding Theory:** Codes on Graphs, Algebraic Coding Theory, Group Testing, Rank Modulation in the Ulam Metric (deletion correction on permutations), Coding for DNA-Based Storage, Synchronization Codes for Distributed Storage Systems.
⋄ **Machine Learning - Compressive Sensing, Low-Rank Matrix Completion, Online Representation Learning:** Reconstruction Algorithms, Quantization, Optimization on Grassman manifolds, Compressive sensing DNA microarrays.
⋄ **Machine Learning - Functional Community Detection:** Correlation clustering, Intersection

Graphs, Latent Feature Modeling, Mutated Pathway Detection for Cancer Genomics.
◇ **Machine Learning - Ordinal Data Processing:** Distance on rankings, Social Choice Theory, Rank Aggregation, Ordinal Data Compression, Ordinal Data Synchronization.

AWARDS AND HONORS

Board of Governors, IEEE Information Theory Society, 2018.

Fellow, IEEE, 2018.

IEEE Communications Society Data Storage Technical Committee Best Student Paper Award (with F. Farnoud), 2016.

Distinguished Lecturer, IEEE Information Theory Society, 2015.

Dean's Excellence in Research Award, 2013.

Willett Scholar, University of Illinois, 2013.

Strategic Research Initiatives Grant, University of Illinois, 2013.

CAS (Center for Advanced Studies) Associate, UIUC, 2012-2013.

ISIT 2010 Best Student Paper Award.

DARPA Young Faculty Award, 2007.

NSF Career Award, 2007.

Honorable mentioning, Fifth International Workshop on Computational Systems Biology, WCSB 2008, June 11-13, 2008 Leipzig, Germany (ranked third best paper of the conference).

Honorable mentioning, ICC Best Paper Awards, Istanbul, 2006.

Rackham Pre-Doctoral Fellowship, The University of Michigan, 2001-2002.

Fellowship of the Serbian Ministry of Science and Technology, Yugoslavia, 1994-1996.

Award for Best Graduation Thesis in Electrical Engineering at the University of Nis, Yugoslavia, 1994.

Award for advanced graduation with outstanding academic performance, University of Nis, Yugoslavia 1994.

Award for outstanding academic performance in 1991,1992,1993, University of Nis, Yugoslavia.

STUDENTS AND POSTDOCS

- ALUMNI
    * **Wei Dai**, UIUC, 2007-2010. Lecturer at Imperial College, London.
    * **Vitaly Skachek**, UIUC, 2011-2012. Lecturer at the Institute of Computer Science, University of Tartu, Estonia.

* **Behrouz Touri**, UIUC, 2011-2013. Assistant Professor at the University of California, San Diego.
* **Han Mao Kiah**, UIUC, 2014-2015. Lecturer at the Nanyang University, Singapore.
* **Gregory Puleo**, UIUC, 2014-2015. Assistant Professor at Auburn University.
* **Hoang Dau**, UIUC, 2015-2017. Lecturer at Monash University, Australia.
* **Ryan Gabrys**, (part-time), 2014-2018. SPAWAR/University of California San Diego.
* **Vida Ravanmehr**, UIUC, 2015-2017. Postdoc at Jackson Lab.
* **Thorsten Hehn**, 2004-2009. Volkswagen, Germany.
* **Stefan Laendner**, 2003-2010. Frauenhoffer Institute, Germany.
* **Farzad Hassanzadeh (Farnaud)**, 2008-2013. Assistant Professor at the University of Virginia.
* **Amin Emad**, 2010-2015. Assistant Professor at McGill University.
* **Minji Kim** (NSF Fellow), 2012-2017. Postdoc at Jackson Lab.
* **Seyed Mohammadhossein Tabatabaei Yazdi**, 2013-2017. Co-founder of Dorna Robotics.
* **Khodakhast Bibak**, 2017-2018. Assistant Professor at the Miami University.
* **Ram Parvi Torghabeh**, 2016-2017.
* **Pan Li**, 2015-2019. Starting as Assistant Professor at Purdue University (CS) in 2020.

– CURRENT Ph.D. STUDENTS AND POSTDOCS

* **Jianhao Peng**.
  Advising period: 2017-present.
* **Eli Chien**.
  Advising period: 2017-present.
* **Chao Pan**.
  Advising period: 2017-present.
* **Shrilakshmi Pattabiraman**.
  Advising period: 2018-present.
* **Vishal Rana**.
  Advising period: 2018-present.
* **Anu Gamarallage**.
  Advising period: 2018-present.
* **Seiyun Shin**.
  Advising period: 2019-present.
* **Abhi Ag**.
  Advising period: 2018-2019.

– MS STUDENTS

* **Vidya Kumar**, M.S. 2006
* **David Leyba**, M.S. 2005
* **Vijay Nagarajan**, M.S., Co-advised with Y. Liu 2004
* **Vin Pham Hoa**, M.S. 2010

– UNDERGRADUATE STUDENTS

* **Samarth Jain**, 2018
* **Lakshay Lahothy**, 2018
* **Mo Deng**, 2011-2012

∗ **Tzu-Yueh Tzeng**, 2011-2012
∗ **Jessy Zhang**, 2014-2015
– STUDENT COLLABORATORS
∗ **Mona Sheikh**, Visiting Ph.D. Student, Rice University.
∗ **Janis Dingel**, Visiting Ph.D. Student, Technisches Universitaet, Munchen.

BOOK CHAPTERS

1. B. Vasic, E. Kurtas, A. Kuznetsov and **O. Milenkovic**, *Structured LDPC codes*, *CRC Coding and Signal Processing for Magnetic Recording*, CRC Press, Eds. B. Vasic and E. Kurtas, Chapter 38, pp. 1-21, 2004.

2. B. Vasic and **O. Milenkovic**, *Detection for Multitrack Systems*, *CRC Coding and Signal Processing for Magnetic Recording*, CRC Press, Eds. B. Vasic and E. Kurtas, Chapter 24, pp. 1-9, 2004.

3. **O. Milenkovic**, *The Three Faces of DNA/RNA Sequence Hybridization*, *Systems Bioinformatics: An Engineering Case-Based Approach*, pp. 285-313, Editors G. Alterovitz and M. Ramoni, Artech House, 2007.

4. **O. Milenkovic**, *Data Processing and Storage in Cells: An Information-Theoretic Approach*, in *Advances in Information Recording*, Editors P. Siegel, E. Soljanin, A. van Wijngaarden, and B. Vasic, DIMACS Series in Discrete Mathematics and Theoretical Computer Science, vol. 73, pp. 105-147, 2008.

SPECIAL JOURNAL PUBLICATIONS

1. **O. Milenkovic**, G. Alterovitz, G. Battail, R. Coleman, J. Hagenauer, S. Meyn, N. Price, M. Ramoni, I. Shmulevich, W. Szpankowski, "Introduction to the special issue on information theory in molecular biology and neuroscience," *IEEE Transactions on Information Theory* 56(2): 649-652 (2010).

2. Andrews, Jeffrey; Dimakis, Alexandros; Dolecek, Lara; Effros, Michelle; Medard, Muriel; **Milenkovic, Olgica**; Montanari, Andrea; Vishwanath, Sriram; Yeh, Edmund, "A Perspective on Future Research Directions in Information Theory," arxive, 2015.

3. Jian Ma and **O. Milenkovic**, *Cell*, Invited Voices article, "Extending the Biology Toolkit."

4. **O. Milenkovic**, R. Gabrys, H. M. Kiah and H. M. Tabatabei Yazdi, "Exabytes in a Test Tube: The Case for DNA Data Storage," *IEEE Spectrum*, **Cover page**, May 2018.

JOURNAL PAPERS (SUBMITTED)

79. M. Kim, P. Wang, P. Clow, Z. Li, B. Lee, J. Peng, I (Eli) Chien, **O. Milenkovic,** J. H. Chuang, R. Casellas, D. Plewczynski, A. W. Cheng, Y. Ruan, "Single-molecule mapping of chromatin folding reveals the dynamics of loop extrusion," *available on BioarXiv*, 2020.

78. S. Pattabiraman, R. Gabrys, **O. Milenkovic**, "Coding for Polymer-Based Data Storage," *submitted, available on arXiv*, 2020.

77. Y. M. Chee, C. Colbourn, H. Dau, R. Gabrys, A. Ling, A. Lucy, and **O. Milenkovic,** "Access Balancing in Storage Systems by Labeling Partial Steiner Systems," *submitted, available on arXiv*, 2019.

76. A. X. Liu, R. Machado, **O. Milenkovic**, "Directed Intersection Representations and the Information Content of Digraphs," *submitted, available on arXiv*, 2019.

75. J. Peng, I. Ochoa and **O. Milenkovic**, "E^{2}M: A Deep Learning Framework for Associating Combinatorial Methylation Patterns with Gene Expression," *available on BioarXiv*, 2019.

74. S. Paul, **O. Milenkovic**, Y. Chen "Higher-Order Spectral Clustering under Superimposed Stochastic Block Models," *in revision, available on arXiv*, 2018.

JOURNAL PAPERS (ACCEPTED AND PUBLISHED)

All papers listed were peer reviewed. The order of authors is determined based on the topic area and the common author listing practices in the area. For EE submissions, students/postdocs are listed first. In bioinformatics, the senior author is the last person on the list. If the majority of coauthors came from a CS/math background, the order is alphabetical. Publications with students and postdoc coauthors are marked with an *.

73. M. Cheraghchi, R. Gabrys, **O. Milenkovic**, J. Ribeiro, "Coded Trace Reconstruction," *IEEE Trans. on Info. Theory, accepted conditioned on minor revisions, available on arXiv*, 2020.

72. S. K. Tabatabaei, B. Wang, N. Athreya, B. Enghiad, A. G. Hernandez, J. P. Leburton, D. Soloveichik, H. Zhao, **O. Milenkovic**, "DNA Punch Cards: Encoding Data on Native DNA Sequences via Topological Modifications," *to appear in Nature Communications, available on BioarXiv*, 2020.

71. P. Li, N. He and **O. Milenkovic**, "Quadratic Decomposable Submodular Function Minimization: Theory and Practice," *to appear in JMLR, available on arXiv*, 2020.

70. P. Li, G. Puleo and **O. Milenkovic***, "Motif and Hypergraph Correlation Clustering," *accepted*, IEEE Trans. on Info. Theory, available on arXive, 2019.

69. R. Gabrys and **O. Milenkovic***, "Unique Reconstruction of Coded Strings from Multiset Substring Spectra," *accepted*, IEEE Trans. on Info. Theory, available on arXive, 2019.

68. R. Gabrys, H. Dau, C. Colbourn and **O. Milenkovic***, "Set-Codes with Small Intersections and Small Discrepancies," *accepted*, SIAM Journal on Discrete Mathematics, SIDMA, available at arXiv, https://arxiv.org/abs/1901.05559, 2019.

67. H. Dau, **O. Milenkovic** and G. J. Puleo*, "On the Triangle Clique Cover and K_t Clique Cover Problems," *accepted*, *Discrete Applied Mathematics*, available on arXiv, 2019.

66. N. Athreya, **O. Milenkovic**, J.P. Leburton, "Detection and Mapping of dsDNA Breaks using Graphene Nanopore Transistors," *Biophysical Journal* 116 (3), 292a, 2019.

65. B. Khodakhast and **O. Milenkovic***, "Explicit Formulas for the Weight Enumerators of Some Classes of Deletion Correcting Codes," *IEEE Transactions on Communication*, 67 (3), 1809-1816, 2019.

64. K. Liu, C. Pan, A. Kuhn, A. P. Nievergelt, G. E. Fantner, **O. Milenkovic**, and A. Radenovic,* "Detecting Topological Variations of DNA at Single-Molecule Level," *Nature Communications*, 10, np. 3, 2019.

63. H. Dau and **O. Milenkovic***, "MaxMinSum Steiner Systems for Access-Balancing in Distributed Storage," *SIAM Journal on Discrete Mathematics*, 32-3, pp. 1644-1671, 2018.

62. H. Dau, I. Duursma, H. M. Kiah and **O. Milenkovic***, "Repairing Reed-Solomon Codes from Multiple Erasures," *IEEE Trans. on Information Theory*, 64(10): 6567-6582, 2018.

61. J. Peng, **O. Milenkovic** and I. Ochoa*, "METHCOMP: A Special Purpose Compression Platform for DNA Methylation Data," *Bioinformatics*, 34(15): 2654-2656, 2018 (joint senior author, listed in alphabetical order).

60. V. Ravanmihr, G. J. Puleo, S. Bolouki, **O. Milenkovic***, "Paired Threshold Graphs," *Previously entitled Doubly-Threshold Graphs*, *Discrete Applied Mathematics*, 2018.

59. H. T. Yazdi, H. M. Kiah, R. Gabrys, **O. Milenkovic***, "Mutually Uncorrelated Primers for DNA-Based Data Storage," *IEEE Transactions on Information Theory*, 64(9): 6283-6296, 2018.

58. G. J. Puleo, **O. Milenkovic***, "Community Detection via Minimax Correlation Clustering and Biclustering," *IEEE Transactions on Information Theory*, 64(6): 4105-4119, 2018.

57. V. Ravanmehr, M. Kim, Z. Wang and **O. Milenkovic***, "ChIPWig: A Random Access-Enabling Lossless and Lossy Compression Method for ChIP-seq Data," *Bioinformatics*, 34(6): 911-919 (2018).

56. R. Gabrys, E. Yaakobi, **O. Milenkovic***, "Codes in the Damerau Distance for Deletion and Adjacent Transposition Correction," *IEEE Transactions on Information Theory*, vol. 64, no. 4, pp. 2550 - 2570, 2018.

55. H. Dau and **O. Milenkovic***, "Latent Network Features and Overlapping Community Discovery via Boolean Intersection Representations," *IEEE/ACM Transactions on Networking*, 25(5): 3219-3234, 2017.

54. F. Farnoud, **O. Milenkovic**, G. Puleo, L. Su*, "Computing Similarity Distances Between Rankings," *Discrete Applied Mathematics*, 232: 157-175, 2017.

53. H. Tabatabaei Yazdi, R. Gabrys, **O. Milenkovic***, "Portable and Error-Free DNA-Based Data Storage," *Nature Scientific Reports*, 2017.

52. R. Gabrys, H. Kiah and **O. Milenkovic***, "Codes in the Asymmetric Lee Distance," *IEEE Transactions on Information Theory*, 63(8): 4982-4995, 2017.

51. S. M. Hossein Tabatabaei Yazdi, Han Mao Kiah, Eva Ruiz Garcia, Jian Ma, Huimin Zhao, **Olgica Milenkovic***, "DNA-Based Storage: Trends and Methods," CoRR abs/1507.01611, *IEEE Transactions on Molecular, Biological and Multiscale Communications*, 2016.

50. S. ElRouyhaeb, S. Goparaju, H. Kiah and **O. Milenkovic***, "Synchronizing Edits in Distributed Storage Networks," *IEEE/ACM Transactions on Networking*, October 2016.

49. J. Hou, A. Emad, G. Puleo, J. Ma, and **O. Milenkovic***, "A New Correlation Clustering Method for Cancer Mutation Analysis," *Bioinformatics*, 32(24): 3717-3728, 2016. http://bioinformatics.oxfordjournals.org/content/early/2016/08/16/bioinformatics.btw546.abstract.

48. C. Laure, D. Karamessini, **O. Milenkovic**, L. Charles, J-F. Lutz, "Coding in 2D: Using Intentional Dispersity to Enhance the Information Capacity of Sequence-Coded Polymer Barcodes," *Angewandte Chemie*, http://www.ncbi.nlm.nih.gov/pubmed/27484303, August 2016. **Press coverage: New Scientist, Nature.**

47. H. M. Kiah, G. J. Puleo and **O. Milenkovic***, "Coding for DNA Sequence Profiles," *IEEE Transactions on Information Theory*, 62(6): 3125-3146, 2016.

46. A. Emad and **O. Milenkovic***, "Code Construction and Decoding Algorithms for Semi-Quantitative Group Testing with Nonuniform Thresholds," *IEEE Transactions on Information Theory,* 62(4): 1674-1687, 2016.

45. M. Kim, J. Zhang, J. Ligo, V. Veeravalli, **O. Milenkovic***, "MetaCRAM: An Integrated Pipeline for Metagenomic Data Processing and Compression," *BMC Bioinformatics,* 17: 94, 2016.

44. Z. Wang, T. Weissman, **O. Milenkovic***, "smallWig: Parallel Low-Rate Compression Algorithms for RNA-seq WIG Files," *Bioinformatics*, 32(2): 173-180, 2016.

43. H. Tabatabaei Yazdi, Y. Yuan, J. Ma, H. Zhao, and **O. Milenkovic***, "A Rewritable, Random-Access DNA-Based Storage System," *Nature Scientific Reports*, 2015.
Work featured in the New York Times, Spectrum, Nature etc.
http://www.nytimes.com/2015/12/04/science/data-storage-on-dna-can-keep-it-safe-for-centuries.html?_r=0

42. G. Puleo and **O. Milenkovic***, "Correlation Clustering with Bounded Cluster Sizes and New Weight Bounds," *SIAM Journal on Optimization*, 25(3): 1857-1872, 2015.

41. J.Acharya, H. Das, **Olgica Milenkovic**, A. Orlitsky, S. Pan, "String Reconstruction from Substring Compositions," *SIAM Journal on Discrete Mathematics*, 29 (3): 1340-1371, 2015.

40. A. Emad and **O. Milenkovic***, "Poisson Group Testing: A Probabilistic Model for Boolean Compressed Sensing," *IEEE Transactions on Signal Processing*, 63(16): 4396-4410, 2015.

39. M. Kim, F. Farnoud and **O. Milenkovic***, "Gene Prioritization via Hybrid Distance-Score Aggregation," *Bioinformatics*, 31(7): 1034-1043, 2014.

38. F. Farnoud and **O. Milenkovic***, "An Axiomatic Approach to Constructing Distances for Rank Comparison and Aggregation," *IEEE Transactions on Information Theory*, vol. 60, pp. 6417-6439, Oct. 2014.

37. A. Emad and **O. Milenkovic***, "Semi-Quantitative Group Testing" *IEEE Transactions on Information Theory*, 60(8): 4614-4636, 2014.

36. A. Emad and **O. Milenkovic***, "CaSPIAN: A Causal Compressive Sensing Algorithm for Discovering Directed Interactions in Gene Networks," *PLOS One*, DOI: 10.1371/journal.pone.0090782014, published March 12, 2014.

35. F. Farnoud and **O. Milenkovic***, "Multipermutation Codes in the Ulam Metric for Nonvolatile Memories," *Journal of Selected Areas in Communications*, Special Issue on Data Storage, vol. 32, no. 5, pp. 919-932, May 2014. **Best Student Data Storage Paper Award**

34. F. Farnoud, V. Skachek and **O. Milenkovic***, "Error-Correction in Flash Memories via Codes in the Ulam Metric," *IEEE Transactions on Information Theory*, 59(5): 3003-3020, 2013.

33. V. Skachek, **O. Milenkovic** and A. Nedich*, "Hybrid Noncoherent Network Coding," *IEEE Transactions on Information Theory*, 59(6): 3317-333, 2013.

32. W. Dai, **O. Milenkovic**, and H. V. Pham*, "Structured Sublinear Compressive Sensing via Belief Propagation," *Physical Communication, Special Issue on compressive sensing in communications*, vol. 5, no. 2, pp. 76-90, November 2011 (online), June 2012.

31. F. Farnoud and **O. Milenkovic***, "Sorting of Permutations by Cost-Constrained Transpositions," *IEEE Transactions on Information Theory*, 58(1): 3-23, 2012.

30. W. Dai, E. Kerman, and **O. Milenkovic***, "A Geometric Approach to Low-Rank Matrix Completion," *IEEE Transactions on Information Theory*, 58(1): 237-247, 2012.

29. W. Dai, **O. Milenkovic**, and E. Kerman*, "Subspace Evolution and Transfer (SET) for Low-Rank Matrix Completion," *IEEE Transactions on Signal Processing*, 59(7): 3120-3132, 2011.

28. W. Dai and **O. Milenkovic***, "A Comparative Study of Quantized Compressive Sensing Schemes," *IEEE Transactions on Communications*, 59(7): 1857-1866, 2011.

27. N. Alic, M. Karlsson, M. Skoeld, **O. Milenkovic**, P. A. Andrekson, and S. Radic, "Joint Statistics and MLSD in Filtered Incoherent High-Speed Fiber Optic Communications," *IEEE - OSA Journal on Lightwave Technology*, vol. 28, Issue 10, pp. 1564-1572, 2010.

26. A. McGregor and **O. Milenkovic**, "On the Hardness of Approximating Stopping and Trapping Sets," *IEEE Trans. on Information Theory*, vol. 56, (4), pp. 1640 - 1650, April 2010.

25. T. Hehn, J. Huber, **O. Milenkovic**, and S. Laendner,* "Multiple-bases belief-propagation decoding of high-density cyclic codes," *IEEE Transactions on Communications*, vol. 58 , no. 1, pp. 1-8, January 2010.

24. J. Dingel and **O. Milenkovic***, "List-decoding Methods for Inferring Polynomials in Finite Dynamical Gene Network Models," *Bioinformatics*, doi: 10.1093/bioinformatics/btp281, 2009.

23. W. Dai and **O. Milenkovic***, "Weighted Superimposed Codes and Constrained Integer Compressed Sensing," *IEEE Transactions on Information Theory*, vol. 55, no. 5, pp. 2215-2230, May 2009.

22. W. Dai and **O. Milenkovic***, "Subspace Pursuit for Compressive Sensing Signal Reconstruction," *IEEE Transactions on Information Theory*, vol. 55, no. 5, pp. 2230-2250, May 2009.

21. W. Dai, M. Sheikh, **O. Milenkovic**, and R. Baraniuk*, "Compressed Sensing DNA Microarrays," *EURASIP Journal on Bioinformatics and Systems Biology*, Article ID 162824, 12 pages doi:10.1155/2009/162824, 2009 (At this point of time I was not aware of the author listing policies followed by the bioinformatics community, and did not place my name last. I am the senior author, and this work was based on my DARPA Young Faculty Award and my NSF CCF award (PI)).

20. S. Laendner, T. Hehn, **O. Milenkovic**, and J. Huber*, "The Trapping Redundancy of Linear Block Codes", *IEEE Transactions on Information Theory*, vol. 55, no. 1, pp. 53-63, January 2009.

19. T. Hehn, **O. Milenkovic**, S. Laendner, and J. Huber*, "Permutation Decoding and the Stopping Redundancy Hierarchy of Cyclic and Extended Cyclic Codes," *IEEE Transactions on Information Theory*, vol. 54, no. 12, pp. 5308-5331, December 2008.

18. **O. Milenkovic**, E. Soljanin, and P. Whiting, "On the Asymptotic Spectrum of Trapping Sets in Random, Regular and Irregular Code Ensembles," *IEEE Transaction on InformationTheory*, Vol. 53, No. 1, pp. 39-55, January 2007.

17. S. Laendner and **O. Milenkovic***, "Codes Based on Latin Squares: Stopping Set, Trapping Set, and Cycle-Length Distribution Analysis," *IEEE Transactions on Communications*, Vol. 55, No. 2, pp. 303-312, February 2007.

16. V. Nagarajan, S. Laendner, **O. Milenkovic**, N. Jayakumar, and S. Khatri*, "High-Throughput VLSI Implementations of Iterative Decoders and Related Code Construction Problems," *The Journal of VLSI Signal Processing*, Vol. 49, No. 1, pp. 185-206, May 2007.

15. **O. Milenkovic**, N. Kashyap, and D. Leyba, "Shortened Array Codes of Large Girth," *IEEE Transactions on Information Theory*, Vol. 5, No. 8, pp. 3707-3722, August 2006.

14. **O. Milenkovic** and N. Kashyap, "On the Design of Codes for DNA Computing," *Lecture Notes in Computer Science 3969*, pp. 100-119, Springer Verlag, Berlin-Heidelberg, 2006.

13. V. Kumar and **O. Milenkovic***, "Unequal Error Protection LDPC Codes based on Plotkin-Type Constructions," *IEEE Transactions on Communications*, Vol. 54, No. 6, pp. 994-1005, June 2006.

12. **O. Milenkovic** and K. Compton, "Average Case Analysis of Gosper's Algorithm," *Algorithmica*, Vol. 43, No. 3, pp. 211-244, September 2005.

11. V. Kumar and **O. Milenkovic***, "On Graphical Representations of Algebraic Codes Suitable for Iterative Decoding," *IEEE Communications Letters*, Vol. 9, No. 8, pp. 729-731, August 2005.

10. I. Djordjevic, **O. Milenkovic**, and B. Vasic, "Generalized LDPC Codes for Long-Haul Optical Communication Systems," *IEEE Journal of Lightwave Technology*, Vol. 23, No. 5, pp. 1939-1946, May 2005.

 9. **O. Milenkovic**, "Higher Weight and Coset Weight Enumerators of Formally Self Dual Codes," *Designs, Codes and Cryptography*, Vol. 35, No.1, pp. 89-101, April 2005.

 8. **O. Milenkovic**, I. Djordjevic, and B. Vasic, "Block-Circulant Low-Density Parity-Check Codes for Optical Communication Systems," *IEEE Journal of Selected Topics in Quantum Electronics*, Vol. 10, No. 2, pp. 294-299, April 2004.

 7. B. Vasic, **O. Milenkovic**, "Combinatorial Constructions of Low-Density Parity-Check Codes for Iterative Decoding," *IEEE Transactions on Information Theory*, Vol. 50, No. 6, pp 1156-1176, June 2004.

 6. **O. Milenkovic**, K. Compton, "Probabilistic Transforms for Combinatorial Urn Models," *Combinatorics, Probability and Computing*, pp. 645-675, Vol. 13, No. 4-5, July-September 2004.

 5. **O. Milenkovic**, S. Coffey, K. Compton, "The Third Support Weight Enumerators of the [32,16,8] Doubly-Even, Self-Dual Codes," *IEEE Transactions on Information Theory*, Vol. 49, No. 3, pp. 740-747, March 2003.

 4. **O. Milenkovic**, B. Vasic, "Permutation (d,k) Codes: Efficient Enumerative Coding and Phrase Length Distribution Shaping", *IEEE Transactions on Information Theory*, Vol. 46, No. 7, pp. 2671-2675, Nov. 2000.

 3. B. Vasic, S. McLaughlin, **O. Milenkovic**, "Shannon Capacity of M-ary Redundant Multitrack Runlength Limited Codes", *IEEE Transactions on Information Theory*, Vol. 44, No. 2, pp. 766-774, March 1998.

 2. B. Vasic, **O. Milenkovic**, S. McLaughlin, "Power Spectral Density of Multitrack (0,G/I) codes," *IEE Electronics Letters*, Vol. 33, No. 9, pp. 784-786, April 1997.

 1. B. Vasic, **O. Milenkovic**, S. McLaughlin, "Scrambling for Unequiprobable Signaling," *IEE Electronics Letters*, Vol. 32, No. 17, pp. 1551-1552, Aug. 1996.

CONFERENCE PAPERS (SUBMITTED)

A. Agarwal, **O. Milenkovic**, S. Pattabiraman, J. Ribeiro, "Group Testing with Runlength Constraints for Topological Molecular Storage," arxiv.org/abs/2001.04577.

R. Gabrys, S. Pattabiraman, **O. Milenkovic**, "Mass Error-Correction Codes for Polymer-Based Data Storage," https://arxiv.org/abs/2001.04967.

Eli Chien, Pan Li, **Olgica Milenkovic,** "Landing Probabilities of Random Walks for Seed-Set Expansion in Hypergraphs," CoRR abs/1910.09040 (2019)

I. Chien and **O. Milenkovic**, "Support Estimation via Regularized and Weighted Chebyshev Approximations," *submitted, available on arXiv*, 2020.

CONFERENCE PAPERS

Peer reviewed conference papers (only international conferences are listed. List of papers presented at local conferences available upon request). Papers are arranged by area.

Machine Learning (21 papers)

A. Gamaralage, I. Chien, J. Peng and **O. Milenkovic,** "MultipleMotif GANs," *ICASSP*, 2020.

P. Li, I. Chien and **O. Milenkovic**, "Optimizing the Weights of Generalized PageRank Methods for Community Detection and Beyond," *NeurIPS*, 2019.

A. Agarwal, J. Peng and **O. Milenkovic**, "Online Convex Dictionary Learning," *NeurIPS*, 2019.

I. Chien, C. Pan, **O. Milenkovic**, "Query K-means Clustering and the Double Dixie Cup Problem," *NeurIPS*, 2018.

P. Li, **O. Milenkovic**, "Revisiting Decomposable Submodular Function Minimization with Incidence Relations," *NeurIPS* 2018.

P. Li, N. He, **O. Milenkovic**, "Quadratic Decomposable Submodular Function Minimization," *NeurIPS* 2018.

P. Li and **O. Milenkovic**, "Submodular Hypergraphs: p-Laplacians, Cheeger Inequalities and Spectral Clustering, *ICML*, 2018.

P. Li and **O. Milenkovic**, "Inhomogeneous Hypergraph Clustering with Applications," *NeurIPS*, 2017 **(Spotlight)**.

P. Li and **O. Milenkovic**, "Multiclass MinMax Rank Aggregation," *ISIT*, 2017.

P. Li, H. Dau, G. J. Puleo, and **O. Milenkovic**, "Motif Clustering and Overlapping Clustering for Social Network Analysis," *Infocom*, 2017.

P. Li, A. Mazumdar and **O. Milenkovic**, "Rank Aggregation via Lehmer Codes," *AISTATS*, 2017.

G. J. Puleo and **O. Milenkovic**, "Correlation Clustering and Biclustering with Locally Bounded Errors," *ICML*, 2016.

V. Ravanmehr, G. Puleo, S. Bouloki, **O. Milenkovic**, "Doubly-Threshold Graphs for Social Network Modeling," *ITW*, Cambridge, 2016.

H. Dau and **O. Milenkovic**, "Latent Feature Discovery and Co-Intersection Representations of Graphs," *ISIT*, 2016.

A. Mazumdar and **O. Milenkovic**, "Smooth representation of rankings.," *Proceedings of the CISS*, 2014: pp. 1-4.

L. Su, F. Farnoud and **O. Milenkovic**, "Computing the similarity distance between permutations," *ISIT*, 2014.

F. Farnoud and **O. Milenkovic**, "Aggregating Rankings with Positional Constraints," *Proceedings of the Information Theory Workshop (ITW)*, Seville, 2013.

F. Farnoud, E. Yaakobi, B. Touri, **O. Milenkovic** and S. Bruck, "Building Consensus via Iterative Voting," *Proceedings of the ISIT 2013*, Istanbul, 2013.

F. Raisali, F. Farnoud, and **O. Milenkovic**, "Weighted Rank Aggregation via Relaxed Integer Programming," *Proceedings of the ISIT 2013*, Istanbul, 2013.

B. Touri, F. Farnoud, **O. Milenkovic**, and A. Nedich, "A general framework for distributed vote aggregation," *Proceedings of the American Control Conference (ACC)*, 2013.

F. Farnoud, B. Touri, and **O. Milenkovic**, "Nonuniform vote aggregation algorithms", Signal Processing and Communications (SPCOM), 2012.

Compressive Sampling (9 papers)

W. Dai, D. Sejdinovic, and **O. Milenkovic**, "Compressive Sensing for Gaussian Dynamic Signals," *Proceedings of SPARS 2011*, Edinburgh, Scotland, 2011.

W. Dai and **O. Milenkovic**, "Algorithmic Solutions for Quantized Compressive Sensing," *Proceedings of SampTA 2011*, Singapore, 2011.

W. Dai, D. Sejdinovic and **O. Milenkovic**, "Gaussian Dynamic Compressive Sensing," *Proceedings of SampTA 2011*, Singapore, 2011.

V.P. Hoa, W. Dai, and **O. Milenkovic**, "Compressive List-Support Recovery for Colluder Identification", *Proceedings of ICASSP*, Texas, 2010.

W. Dai, H. Vin Pham, and **O. Milenkovic**, "Distortion-Rate Functions for Compressive Sensing," *Proceedings of the ISIT'2009*, Seul, Korea, 2009.

H. V. Pham, W. Dai, and **O. Milenkovic**, "Sublinear Complexity Reconstruction Compressive Sensing via Belief Propagation," *Proceedings of the ISIT'2009*, Seul, Korea, 2009.

W. Dai, H. Pham, **O. Milenkovic**, "Distortion-Rate Functions for Quantized Compressive Sensing," *Proceedings of the ITW'2009*, Volos, Greece, 2009.

W. Dai and **O. Milenkovic**, "Sparse Weighted Euclidean Superimposed Coding for Integer Compressed Sensing" *Proceedings of the CISS*, Princeton, 2008.

W. Dai and **O. Milenkovic**, "Weighted Euclidean Superimposed Codes for Integer Compressed Sensing," *Proceedings of the ITW'08*, Porto, Portugal, 2008.

Low-Rank Matrix Completion (4 papers)

P. Johnstone, A. Emad, **O. Milenkovic** and P. Moulin, "RFIT: A New Algorithm for Matrix Rank Minimization," Proceedings of the Signal Processing with Adaptive Sparse Structured Representations (SPARS13), 2013.

A. Emad and **O. Milenkovic**, "Information Theoretic Bounds for Tensor Rank Minimization over Finite Fields," *Proceedings of the Globecom 2011*, December 2011.

W. Dai, E. Kerman and **O. Milenkovic**, 'Low-Rank Matrix Completion with Geometric Performance Guarantees," Proceedings of the ICASSP'2011, Prague, Czech Republic, 2011.

W. Dai and **O. Milenkovic**, "SET - an algorithm for consistent matrix completion," Proceedings of the ICASSP 2010, Dallas, TX, http://arxiv.org/abs/0909.2705.

Group Testing (4 papers)

A. Emad and **O. Milenkovic**, "Nonuniformly Quantized Adder Channels," *ISIT*, 2014.

A. Emad and **O. Milenkovic**, "Poisson Group Testing: A Probabilistic Model for Nonadaptive Streaming Boolean Compressed Sensing," ICASSP 2014, Florence, Italy.

A. Emad and **O. Milenkovic**, "Semi-quantitative Group Testing," *Proceedings of the ISIT*, Boston, USA, 2012.

A. Emad and **O. Milenkovic**, "Symmetric Group Testing and Superimposed Codes," Proceedings of the ITW'2011, Paraty, Brazil, 2011.

Information and Coding Theory in Bioinformatics (36 papers)

C. Pan, S. M. Hossein Tabatabaei Yazdi, K. Tabatabaei, A. G. Hernandez, C. Schroeder, **Olgica Milenkovic**, "Image processing in DNA," ICASSP 2020.

K. Tabatabei, B. Wang, N. Murali, A. Hernandez, J. P. Leburton, D. Soloveichik, H. Zhao, **O. Milenkovic**, "DNA Punch Cards," *DNA25, oral presentation*, 2019.

S. Pattabiraman, R. Gabrys and **O. Milenkovic**, "Reconstruction and Error-Correction Codes for Polymer-Based Data Storage," *ITW*, 2019.

M. Cheragchi, R. Gabrys, **O. Milenkovic** and J. Ribeiro, "Coded Trace Reconstruction," *ITW*, 2019.

R. Gabrys **O. Milenkovic**, Unique Reconstruction of Coded Strings from their Substring Spectrum, *DNA 23*, 2017.

H. Tabatabei Yazdi, R. Gabrys **O. Milenkovic**, Portable and Error-Free DNA-Based Data Storage, *DNA 23, oral presentation*, 2017.

V. Ravanmehr, Z. Wang, **O. Milenkovic**, A New Algorithm for ChIP-Seq Data Compressions, Cold Spring Harbor, Biological Data Science, November 2016.

M. Kim and **O. Milenkovic**, Hi-C Data Compression Methods, Cold Spring Harbor, Biological Data Science, November 2016.

S. M. Hossein Tabatabaei Yazdi, Han Mao Kiah, **Olgica Milenkovic**, Weakly mutually uncorrelated codes. ISIT 2016: 2649-2653

M. Hernaez, M. Kim, P. Li, **O. Milenkovic**, I. Ochoa, K. Tatwawadi, Z. Wang, T. Weissman, *Trends and Methods in Genomic Data Compression*, Special Session Details - ISMB 2016 - Compressive Omics: Making Big Data Manageable through Data Compression

R. Gabrys, H. K. Kiah, **O. Milenkovic**, G. Puleo, H. Tabatabaei Yazdi, E. Yaakobi, "Coding for DNA-Based Storage," The 2016 Non-Volatile Memories Workshop (NVMW2016) , oral presentation.

H. Kiah, G. Puleo and **O. Milenkovic**, "Coding for DNA Profiles," *ISIT 2015*.

H. Tabatabaei Yazdi, Y. Yuan, J. Ma, H. Zhao, and **O. Milenkovic**, "A Rewritable, Random-Access DNA-Based Storage System," *selected for oral presentation*, DNA21, Boston, 2015.

H. Kiah, G. Puleo, and **O. Milenkovic**, "Codes for DNA Storage Channels," ITW 2015, Jerusalem, Israel.

Z. Wang, T. Weissman, and O. Milenkovic, "Compression of RNA-seq expression data", Cold Spring Harbor, Biological Data Science, November 2014.

M. Kim, J. Zhang, J. Ligo, A. Emad, V. Veeravalli, O. Milenkovic, MetaCRAM: Parallel compression of metagenomic sequences via extended Golomb codes, Cold Spring Harbor, Biological Data Science, November 2014 (oral presentation).

J. Ligo, M. Kim, A. Emad, **O. Milenkovic**, and V. Veeravali, "MCUIUC - A New Framework for Metagenomic Read Compression," *Proceedings of the ITW*, ITW'13, Seville, 2013.

M. Kim, F. Raisali, F. Farnoud and **O. Milenkovic**, "Gene Prioritization via Weighted Kendall Rank Aggregation," *Proceedings of the Camsap*, Saint Martin, 2013.

M. Kim, J. Ligo, A. Emad, F. Farndoud, **O. Milenkovic** and V. Veeravalli, "MetaPar: Metagenomic Sequence Assembly via Iterative Read Classification," GlobalSip, 2013.

M. Deng, A. Emad and **O. Milenkovic** , "Causal Compressive Sensing for Reverse Engineering Gene Networks," *Proceedings of the SSP*, SSP, Ann Arbor, 2012.

A. Emad, W. Dai and **O. Milenkovic**, "Protein-Protein Interaction Prediction using Non-Linear Matrix Completion Methods, *Proceedings of RECOMB 2011*, Vancouver, Canada, March 2011.

W. Dai, **O. Milenkovic**, and Prasad Santhanam, "Inferring Protein-Protein Interactions via Low-Rank Matrix Completion," *Proceedings of the ICNAAM, International Conference on Numerical Analysis and Applied Mathematics*, Rhodes, Greece, September 2010.

J. Dingel, and **O. Milenkovic**, "Inferring Algebraic Gene Networks using Local-Decoding ,"*Proceedings of the BIBE'08 Workshop on Systems Biology and Medicine*, Philadelphia, November 2008.

W. Dai, M. Sheikh, **O. Milenkovic**, and R. Baraniuk, "New Probe Design Algorithms for Compressive Sensing DNA Microarrays," *Proceedings of the IEEE Conference on Bioinformatics and Biomedicine, BIBM*, 2008.

J. Dingel and **O. Milenkovic**, "A List-Decoding Approach for Inferring the Dynamics of Gene Regulatory Networks," Proceedings of the International Symposium on Information Theory, *ISIT'08*, Toronto, Canada, 2008.

M. Sheikh, S. Sarvotham, **Olgica Milenkovic**, and R. Baraniuk, "DNA array decoding from nonlinear measurements by belief propagation," *Proceedings of the IEEE Workshop on Statistical Signal Processing* (SSP), Madison, Wisconsin, August 2007.

D. Huang and **O. Milenkovic**, "Superimposed coding for iterative detection of DNA microarray spot failures," Proceedings of the *IEEE Genetic Signal Processing and Statistics* (GENSIPS) conference, 2008.

J. Dingel and **O. Milenkovic**, "Decoding the dynamics of gene regulatory networks under a dynamics model," Proceedings of the Fifth *International Workshop on Computational Systems Biology*, Leipzig, Germany, 2008 (voted one of top three papers at the conference).

O. Milenkovic, "Constrained Coding via Context-Free Grammars with Applications to RNA Sequence Analysis," *Proceedings of the ISIT'2007*.

O. Milenkovic and N. Kashyap, "Construction of DNA Codes which Avoid Secondary Structures," *Proceedings of the IEEE International Symposium on Information Theory 2005* (5 pages), Adelaide, Australia, September 2005.

O. Milenkovic, N. Kashyap, and B. Vasic, "Coding for DNA Computers Controlling Gene Expression Levels," *Invited paper, IEEE Conference on Decision and Control*, CDC'2005, (6 pages) Seville, Spain, December 2005.

S. Chilappagari, **O. Milenkovic**, and B. Vasic, "Compression of DNA Sequences using Fractal Grammars and Integer Wavelet Transforms," *Proceedings of the Genetic Signal Processing Symposium (GENSIPS)*, (2 pages) Rhode Island.

O. Milenkovic and N. Kashyap, "Constructions of Codes for DNA Computing," *Proceedings of the Workshop on Coding and Cryptography*, WCC'05, pp. 204-214, Bergen, Norway, March 2005.

O. Milenkovic and B. Vasic, "Information Theory Problems in Genetics," *Proceedings of the IEEE Information Theory Workshop*, ITW'2004, pp. 60-64, San Antonio, October 2004.

LDPC Codes and Iterative Decoding (18 papers)

S. Laendner, **O. Milenkovic**, and J. Huber, "Characterization of Small Trapping Sets in LDPC Codes from Steiner Triple Systems," Proceedings of the 6th International Symposium on Turbo Codes and Iterative Information Processing, Brest, France, September 2010.

T. Hehn, S. Laendner, **O. Milenkovic**, and J. Huber, "Dense Error Correction via Automorphism Group Decoding," *HDD Workshop*, Tel Aviv, February 2010.

W. Dai and **O. Milenkovic**, "Iterative Subspace Pursuit Decoding of Euclidean Superimposed Codes," Proceedings of the TURBO CODING 2008 Symposium, Lausanne, September 2008.

A. McGregor and **O. Milenkovic**, "On the Hardness of Approximating Stopping and Trapping Sets," *Proceedings of the ITW'08*, Lake Tahoe, 2007.

T. Hehn, S. Laendner, **O. Milenkovic**, and J. Huber, "The Stopping Redundancy Hierarchy of Cyclic Codes", presented at the 44th Allerton Conference 2006 (regular paper), September 2006.

S. Laendner, T. Hehn, **O. Milenkovic**, and J. Huber, "When Does one Parity-Check Equation Matter?," *Proceedings of the Globecom 2006*, San Francisco, 2006.

O. Milenkovic, E. Soljanin, and P. Whiting, "Stopping and Trapping Sets in Generalized Covering Arrays," *Proceedings of the CISS'2006*, March 2006.

O. Milenkovic, E. Soljanin, and P. Whiting, "Trapping Sets in Irregular LDPC Code Ensembles," *Proceedings of the ICC'2006*, (6 pages), December 2005 (the paper received honorable mentioning as the runner up for the best paper award).

O. Milenkovic, E. Soljanin and P. Whiting, "Asymptotic Distributions of Combinatorial Configurations in Random Regular LDPC Code Ensembles," *presented at the 43rd Allerton Conference on Communications, Control and Computing (long paper)*, September-October 2005.

S. Laendner and **O. Milenkovic**, "Algorithmic and Combinatorial Analysis of Trapping Sets in Structured LDPC Codes," *Proceedings of the 2005 International Conference on Wireless Networks, Communications and Mobile Computing*, WirelessCom 2005, (6 pages) Maui, Hawaii, June 2005.

V. Kumar and **O. Milenkovic**, "On Representations of Algebraic Codes Suitable for Iterative Decoding," *Proceedings of the 39th Conference on Information Sciences and Systems*, CISS'2005, pp. 41, Baltimore, March 2005.

I. B. Djordjevic, **O. Milenkovic**, and B. Vasic, "Generalized Low-Density Parity-Check Codes for Long-Haul High-Speed Optical Communication," *Proceedings of the Optical Fiber Communication Conference and Exposition and The National Fiber Optic Engineers Conference*, OFC'2005, OThW6, (2 pages), Washington D.C., March 2005.

V. Kumar and **O. Milenkovic**, "Unequal Error Protection LDPC Codes Based on Plotkin-Type Constructions," *Proceedings of the IEEE Global Telecommunications Conference*, Globecom 2004, CT15-2, pp. 493-497, Dallas, Texas, December 2004.

D. Leyba, **O. Milenkovic**, D. Bennet, and N. Kashyap, "New Partition Regular Sequences and Generalized Array Codes of Large Girth," *Proceedings of the 42nd Annual Conference on Communications, Control and Computing*, pp. 240-249, Allerton, IL, October 2004.

V. Kumar, **O. Milenkovic**, and B. Vasic, "Structured LDPC Codes over $GF(2^m)$ and Companion Matrix Based Decoding," *Proceedings of the IEEE International Symposium on Information Theory*, ISIT'2004, p. 226, Chicago, June-July 2004.

O. Milenkovic, V. Kumar, and B. Vasic, "Companion Matrix Based Decoding" *presented at IEEE CTW'2004*, Capri (no Proceedings published).

O. Milenkovic and S. Laendner, "Analysis of the Cycle Structure of LDPC Codes Based on Latin Squares," *Proceedings of the IEEE International Conference on Communications* ICC'2004, CT15-5, pp. 777-781, Paris, France, June 2004.

O. Milenkovic, K. Prakash, and B. Vasic, "Regular and Irregular LDPC Codes Based on Cycle-Invariant Difference Sets," *Proceedings of the 41st Annual Allerton Conference on Communication, Control and Computing*, pp. 1700-1701, October 2003.

Error-Control Coding (20 papers)

R. Gabrys, H. Dau, C. Colbourn, and **O. Milenkovic**, "Set-Codes with Small Intersections and Small Discrepancies," ISIT 2019.

B. Khodakhast, **O. Milenkovic**, "Weight Enumerators of Some Classes of Deletion Correcting Codes," *ISIT*, 2018.

R. Gabrys, **O. Milenkovic**, "Unique Reconstruction of Coded Strings from Multiset Substring Spectra," *ISIT*, 2018.

H. Dau, **O. Milenkovic**, "Optimal Repair Schemes for Some Families of Full-Length Reed-Solomon Codes," *ISIT*, 2017.

H. Dau, I, M. Duursma, H. M. Kiah, and **O. Milenkovic**, "Repairing Reed-Solomon Codes With Two Erasures," *ISIT*, 2017.

Ryan Gabrys, **O. Milenkovic**, Balanced permutation codes. ISIT 2016: 390-394

Ryan Gabrys, Eitan Yaakobi, **O. Milenkovic**, Codes in the Damerau distance for DNA storage. ISIT 2016: 2644-2648

R. Gabrys, H. Kiah and **O. Milenkovic**, "The Asymmetric Lee Distance: Bounds and Code Construction," *ISIT 2015*.

F. Farnoud and **O. Milenkovic**, "Multipermutation Codes in the Ulam Metric," *ISIT*, 2014.

V. Skachek, **O. Milenkovic** and A. Nedich, "Noncoherent Hybrid Network Coding," *Proceedings of the NETCOD*, NETCOD, Boston, 2012.

F. Farnoud, V. Skachek and **O. Milenkovic** , "Rank Modulation Coding for Translocation errors," *Proceedings of the ISIT*, ISIT, Boston, 2012.

F. Farnoud and **O. Milenkovic**, "Polarization coding for parallel channels," Information Theory Workshop, ITA 2011, San Diego, CA.

W. Dai and **O. Milenkovic**, "Weighted ℓ_1 Superimposed Codes," *presented*, Coding Theory Days in Saint Petersburg, October 2008.

C. Lott, **O. Milenkovic**, and E. Soljanin, "Hybrid ARQ: theory, state of the art and future directions," *Proceedings of the ITW'07*, Bergen, Norway, 2007.

T. Hehn, **O. Milenkovic**, S. Laendner, and J. Huber, "Iterative Permutation Decoding and the Stopping Redundancy Hierarchy of Codes," *Proceedings of the ISIT*, Nice, France, 2007.

T. Hehn, S. Laendner, J. Huber, and **O. Milenkovic**, "Multiple Bases Decoding of Algebraic Codes," *Proceedings of the ISIT*, Nice, France, 2007.

V. Kumar and **O. Milenkovic**, "Improved Distance Bounds for Recursive Decoding of Reed-Muller Codes," *Proceedings of the Eighth International IEEE Symposium on Communication Theory and Applications 2005*, pp. 326-331, St. Martin's College, Ambleside, UK, July 2005.

O. Milenkovic and B. Vasic, "Asymptotic Analysis of A* Maximum Likelihood Decoding with Reliability Reordering," *Proceedings of the Information Theory Workshop*, ITW'2003, pp. 316-319, Sorbone, Paris, April 2003.

O. Milenkovic and K. Compton, "A Method for Reducing the Number of Unknown Coefficients of Generalized Hamming Weight Enumerators," *Proceedings of the 2002 IEEE International Symposium on Information Theory*, p. 234, Lauzanne, Switzerland, July 2002.

O. Milenkovic, "On the Generalized Hamming Weight Enumerators and Coset Weight Distributions of Even, Isodual Codes ," *Proceedings of the 2001 IEEE International Symposium on Information Theory*, p. 62, Washington D.C., USA, June 2001.

Constrained Coding (5 papers)

O. Milenkovic and B. Vasic "Power spectral density of multitrack (O,G/I) codes," *Proceedings of the IEEE Information Theory Symposium*, Ulm, Germany, p. 142, July 1997.

B. Vasic and **O. Milenkovic**, "Cyclic Two-dimensional IT Reducing Codes," *Proceedings of the IEEE Information Theory Symposium*, Ulm, Germany, p. 414, July 1997.

S. McLaughlin, **O. Milenkovic**, and B. Vasic, "Channel Capacity of M-ary Multitrack Runlength Limited Channels ," *Proceedings of the IEEE Information Theory Symposium*, Ulm, Germany, p. 139, July 1997.

O. Milenkovic, B. Vasic, and S. Denic, "Novel M-ary (d,k) Codes," *accepted for publication in the Proceedings of the Canadian Workshop on Information Theory*, Toronto, Canada, June 1997.

B.Vasic, **O. Milenkovic**, D.Vasic, "Channel Capacities and Spectra of Maxentropic (O,G/I) Matched-Spectral-Null Sequences," *Proceedings of the IEEE IT Workshop*, (1 page) Rydzyna, Poland, 1995.

Information Theory (7 papers)

A. Kostochka, X. Liu, R. Machado, and **O. Milenkovic**, "Directed Intersection Representations and the Information Content of Digraphs," ISIT 2019.

A. Emad and **O. Milenkovic**, "Compression of Noisy Signals via Information Bottlenecks," *Proceedings of ITW*, Seville, 2013.

F. Farnoud, **O. Milenkovic** and P. Santhanam, "Alternating Markov chains for distribution estimation in the presence of errors," *Proceedings of ISIT*, 2012.

F. Farnoud, O. Milenkovic, N. P. Santhanam, "Small-sample distribution estimation over sticky channels," ISIT 2009, 1125-1129.

S. Denic, C. Charalambous, S. Djouadi, and **O. Milenkovic**, "Capacity of MIMO Gaussian Channels with H^∞ Normed Channel Uncertainties," *Proceedings of the Canadian Workshop on Information Theory*, pp. 315-318, Montreal, Canada, 2005.

O. Milenkovic and S. Denic, "Characterization of Generalized Tsallis Entropies," *Proceedings of the Canadian Workshop on Information Theory*, pp. 20-23, Montreal, Canada 2005.

V. Nagarajan and **O. Milenkovic**, "Structured LDPC Codes over Polya Urn Model Channels," *Proceedings of the IEEE Canadian Conference on Electrical and Computer Engineering*, IEEE CCECE'2004, V1-0541, pp. 543-546, Niagara Falls, May 2004.

Topics in CS (9 papers)

R. Gabrys and **O. Milenkovic**, "The Hybrid k-Deck Problem: Reconstructing Sequences from Short and Long Traces," *ISIT*, 2017.

Son Hoang Dau, **Olgica Milenkovic**, Inference of latent network features via co-intersection representations of graphs. ISIT 2016: 1351-1355

S. El Rouyhaeb, S. Goparaju, H. Kiah, and **O. Milenkovic**, "Synchronizing Edits in Distributed Storage Systems," *ISIT 2015*.

L. Su and **O. Milenkovic**, "Synchronizing Rankings via Interactive Communication," *ISIT*, 2014.

J. Acharya, H. Das, **O. Milenkovic**, A. Orlitsky, S. Pan "A quadratic algorithm for sequence reconstruction from multisets," *ISIT*, 2014.

F. Farnoud and **O. Milenkovic**, "Sorting of Permutations by Cost-Constrained Transpositions," *Proceedings of the ISIT'2011*, Saint Petersburg, Russia.

F. Farnoud, C-Y. Chen, **O. Milenkovic**, Navin Kashyap, "A graphical model for computing the minimum cost transposition distance," *Proceedings of the ITW 2010* (Information Theory Workshop), Dublin 2010.

J. Acharya, Hirakendu Das, **O. Milenkovic**, Alon Orlitsky, and Shengjun Pan, "On Reconstructing a Sequence from its Subsequence Compositions," Proceedings of the ISIT'2010, Austin, Texas, 2010 (**Best Student Paper Award**).

O. Milenkovic, "Analysis of Combinatorial Bin Models with Application in Coding Theory," *Proceedings of the IEEE International Symposium on Information Theory*, ISIT'2004, p. 273, Chicago, June-July 2004.

VLSI Implementations of Signal Processing Algorithms (1 paper)

V. Nagarajan, N. Jayakumar, S. Khatri and **O. Milenkovic**, "High Throughput VLSI Implementations of Iterative Decoders and Related Code Construction Problems," *Proceedings of the IEEE Global Telecommunications Conference*, Globecom 2004, CT11-8 (5 pages), Dallas, Texas, December 2004.

Invited Conference Papers:

71. O. Milenkovic, Online Convex Matrix Factorization, ILAS2019, Brazil, 2019.

70. O. Milenkovic, Clustering Algorithms in Bioinformatics, Future of Algorithms in Bioinformatics, Carnegie Melon, September 2018.

69. O. Milenkovic, Sequence Reconstruction Problems, Bits and Biology, New York, September 2018.

68. O. Milenkovic, Leveraging Data Popularity via MaxMinSum Steiner Systems, Workshop on Coding and Information Theory, Harvard, April 2018.

67. O. Milenkovic, New Directions in Hypergraph Clustering, Dagstuhl Workshop on Coding Theory for Inference, Learning and Optimization, March 2018.

66. O. Milenkovic, Uniquely Reconstructable Substring Codes, AMS Meeting, Algebraic Coding Theory and Applications, March 2018.

65. O. Milenkovic, "Correlation Clustering and Rank Aggregation Revisited," Information Theory Workshop (ITW), Jeju, Korea, 2015.

64. O. Milenkovic (with G. Puleo, A. Emad, and J. Ma), "Functional Correlation Clustering," Simons Institute, Workshop on Big Data, March 2015.

63. O. Milenkovic (with G. Puleo, H. Kiah, J. Ma, H. Zhao, Y. Yian), "DNA Based Storage," Simons Institute, Workshop on Coding Theory, February 2015.

62. G. Puleo and O. Milenkovic, "Correlation Clustering, Coping with Big Data Workshop, University College London, January 2015.

61. R. Gabrys, H. Kiah, and **O. Milenkovic**, "Delsarte Bounds for the Asymmetric Lee Distance," *invited*, ITW, Jerusalem, April 2014.

60. **O. Milenkovic**, "Rank Aggregation and Correlation Clustering," Simons Institute Workshop on Machine Learning, March 2015.

59. **O. Milenkovic**, "Coding for DNA-Based Storage," Simons Institute Workshop on Coding Theory, February 2015.

58. M. Kim, F. Farnoud, and **O. Milenkovic**, "Hybrid Rank Aggregation for Gene Prioritization," *Invited*, Asilomar Conference, 2014.

57. L. Su, O. Milenkovic, "Synchronizing Rankings over Noisy Channels," *Invited*, Asilomar Conference, 2014.

56. S. El Rouayheb, S. Goparaju, H. M. Kiah and O. Milenkovic, "Efficient Synchronization of Files in Distributed Storage Systems," *Invited*, Asilomar Conference, 2014.

55. L. Su and **O. Milenkovic**, "Synchronizing Rankings via iterative Communication," *International Symposium on Communications, Control, and Signal Processing*, Athens, 2014.

54. A. Emad and **O. Milenkovic**, "Semi-quantitative group testing," *International Zurich Seminar*, Switzerland, February 2014.

53. J. Ligo, M. Kim, A. Emad, **O. Milenkovic**, and V. Veeravali, "MCUIUC - A New Framework for Metagenomic Read Compression," *Invited*, ITW'13, Seville, 2013.

52. M. Kim, F. Raisali, F. Farnoud and **O. Milenkovic**, "Gene Prioritization via Weighted Kendall Rank Aggregation," *Invited*, Camsap, Saint Martin, 2013.

51. M. Kim, J. Ligo, A. Emad, F. Farndoud, **O. Milenkovic** and V. Veeravalli, "MetaPar: Metagenomic Sequence Assembly via Iterative Read Classification," *Invited*, GlobalSip, 2013.

50. **O. Milenkovic**, "Permutation Codes in the Ulam Metric," Trends in Coding Theory, Switzerland, November 2012.

49. **O. Milenkovic**, "Iterative Algorithms for Vote Aggregation," (**Plenary talk**), International Symposium on Turbo Codes and Iterative Information Processing, Sweden, 2012.

48. F. Farnoud, B. Touri, and **O. Milenkovic**, "Algorithmic Solutions to Rank Aggregation," SPCOM, Bangalore, India, 2012.

47. A. Emad and **O. Milenkovic**, "Semi-quantitative Group Testing," Group Testing Designs, Algorithms, and Applications in Biology Workshop, IMA Center, 2012.

46. F. Farnoud, V. Skachek, and **O. Milenkovic**, "Rank Modulation Codes for Translocation Errors", ITA 2012.

45. F. Farnoud and **O. Milenkovic**, "Permutation Codes under the Cyclic Transposition Distance," SPCOM 2012, India.

44. M. Deng, A. Emad and **O. Milenkovic**, "Discovering Gene Network Topology via Compressive Sensing," *SPS Workshop*, Ann Arbor, August 2012.

43. V. Skachek, **O. Milenkovic**, and A. Nedich, "Hybrid Network Coding," , AMS Meeting, Boston, January 2012.

42. A. Emad and **O. Milenkovic**, "Quantized Group Testing," AMS Meeting, Boston, January 2012.

41. A. Emad and **O. Milenkovic**, "Group Testing and Compressive Sensing," , SPS Workshop, Campinas, Brazil, 2011.

40. F. Farnoud and **O. Milenkovic**,"Polarization Coding for Parallel Channels," *ITA Workshop*, San Diego, February 2011.

39. J. Acharya, H. Das, **O. Milenkovic**, A. Orlitsky, and S. Pan,"Reconstructing Sequences from Traces," Algebraic Geometry with a view towards applications Workshop (Solving Polynomial Equations), the Mittag-Leffler Institute, Stockholm, February 2011.

38. **O. Milenkovic**, Search Methodologies Workshop, Bielefeld Center for Interdisciplinary Research, October 2010.

37. F. Farnoud, **Olgica Milenkovic**, and Navin Kashyap, "A Graphical Model for Computing the Minimum Cost Transposition Distance," *Proceedings of the ITW 2010*, Dublin, Ireland, September 2010.

36. V. P. Hoa, W. Dai, and **O. Milenkovic**, Performance bounds of list colluder identification algorithms via compressive sensing, ITA Workshop, San Diego, 2010.

35. W. Dai and **O. Milenkovic**, Consistent matrix completion and optimization on manifolds, ITA Workshop, San Diego, 2010.

34. **O. Milenkovic**, Approximate inference in presence of experimental errors, *Workshop on Genomic Error Correction*, Cergy-Pontoise, France, 2009.

33. **O. Milenkovic**, Compressive Sensing in Neuroscience and Molecular Biology, *Engineering Principles in Biological Systems*, Welcome Trust Conference Center, Hinxton, Cambridge, UK, October 2009.

32. **O. Milenkovic**, Information-Theoretic Methods for Reverse Engineering of the Topology and Dynamics of Gene Regulatory Networks, *Algebraic Methods in Systems Biology and Statistics Transition Workshop*, Statistical and Applied Mathematical Sciences Institute (SAMSI), Duke University, NC 2009.

31. **O. Milenkovic**, *Permanents and Modeling Probability Distributions*, American Institute of Mathematics (AIM), Palo Alto, CA September 2009.

30. **O. Milenkovic**, Sub-linear compressive sensing and support weight enumerators of codes: a matroid theory approach, *Applications of Matroid Theory and Combinatorial Optimization to Information and Coding Theory Workshop*, Banff International Research Station for Mathematical Innovation and Discovery (BIRS), August 2009.

29. **O. Milenkovic**, Iterative algorithms for low-rank matrix completion, *Dagstuhl Workshop on Search Methodologies*, July 2009, Germany.

28. N. P. Santhanam, J. Dingel, and **O. Milenkovic**, Information Theoretic Modeling of Gene Interaction, ITW'2009, Volos, Greece.

27. **O. Milenkovic**, "Information-Theoretic Methods for Reverse Engineering of Gene Regulatory Networks," (**Tutorial**), GENSIPS'2009, May 2009.

26. W. Dai and **O. Milenkovic**, Weighted Superimposed Codes and Constrained Integer Compressed Sensing, DIMACS/DyDAn Workshop on Streaming, Coding, and Compressive Sensing: Unifying Theory and Common Applications to Sparse Signal/Data Analysis and Processing, March 2009.

25. F. Farnoud, **O. Milenkovic**, N. P. Santhanam, "Unraveling Sticky Channels," ITA Workshop, 2009 San Diego, CA February, 2009.

24. W. Dai, V. Pham Hoa, and **O. Milenkovic**, "Sub-linear Compressive Sensing Reconstruction via List Belief-Propagation Decoding," ITA Workshop, 2009 San Diego, CA February 2009.

23. W. Dai, H. Vinh Pham, and **O. Milenkovic**, "Distortion-Rate Functions for Quantized Compressive Sensing," ITA Workshop, 2009 San Diego, CA February 2009.

22. H. Das, **O. Milenkovic**, and A. Orlitsky, "Order from Disorder," ITA Workshop Open Problem Session, 2009 San Diego, CA, February 2009.

21. **O. Milenkovic**, "Sparse Information Processing in Life Sciences," Beyond Shannon's Information Theory Workshop Venice, Italy December 2008.

20. W. Dai and **O. Milenkovic**, "Low Complexity Compressive Sensing Reconstruction Algorithms," Special Session "Algorithmic Probability and Combinatorics," American Mathematical Society (AMS) Meeting, October 4-5, Vancouver, Canada.

19. **O. Milenkovic**, "Group Testing for DNA Microarray Designs," Schloss Dagstuhl Seminar on *Group Testing in the Life Sciences*, July 2008.

18. J. Dingel, **O. Milenkovic**, and A. Ashikhmin, "List Decoding of Reed-Muller Codes with Applications in Bioinformatics," *Mathematical Theory of Networks and Systems*, July 2008.

17. J. Dingel and **O. Milenkovic**, "Reverse Engineering of Gene Regulatory Networks via Iterative List Decoding," Proceedings of the ITW'08, Porto, Portugal, 2008.

16. W. Dai, N. Kiyavash, and **O. Milenkovic**, "Spherical Codes for Sparse Digital Fingerprinting," *Spring Central Meeting of the American Mathematical Society*, AMS'08, Special Session on Algebraic Aspects of Coding Theory, Bloomington, IN, April 2008.

15. W. Dai and **O. Milenkovic**, "Constrained Compressed Sensing via Superimposed Coding," presented at the Third *Information Theory and Applications Workshop*, ITA'08, San Diego, CA, 2008.

14. J. Dingel and **O. Milenkovic**, "Reverse Engineering of Gene Regulatory Networks via Iterative List Decoding," presented at the Third *Information Theory and Applications Worksho*, ITA'08, San Diego, CA, 2008.

13. W. Dai and **O. Milenkovic**, "Coding-Theoretic Problems in Genetics: Superimposed Codes for Compressed Sensing DNA Microarrays," Oberwolfach Workshop on Coding Theory, December 2007.

12. **O. Milenkovic**, E. Soljanin, and P. Whiting, "Asymptotic Enumeration of Trapping Sets in Random Tanner Graph Ensembles," *Regional American Mathematical Society Meeting*, Special Session on Algorithmic Probability and Combinatorics, AMS'07, Chicago, October 2007.

11. **O. Milenkovic**, R. Baraniuk, T. Simunic-Rosing, "Compressed Sensing Meets Bioinformatics: A New DNA Microarray Architecture," *Information Theory and Applications Workshop*, San Diego, January, 2007.

10. **O. Milenkovic**, "On the Generalized Reversal Distance," *American Mathematical Society Meeting*, New Orleans, January 2007.

9. **O. Milenkovic** and E. Soljanin, "Enumerating RNA Secondary Structures: A Constrained Coding Approach," *Asilomar Conference on Signals, Systems and Communication*, October 2006.

8. **O. Milenkovic**, "Enumerating RNA Motifs," *Allerton Conference on Communication, Control and Computing*, September 2006.

7. **O. Milenkovic**, "Error and Quality Control Coding for DNA Microarrays," *Information Theory Workshop organized as part of the Inauguration Ceremony of the Jacobs School of Engineering Center for Information Theory and its Applications*, San Diego, February 2006.

6. **O. Milenkovic**, "Constrained and Error-Control Coding for DNA Computers," *Workshop on Statistical Physics and Coding*, Santa Fe, January 2005 (joint work with N. Kashyap).

5. **O. Milenkovic**, "Problems in Combinatorial and Number Theory Arising in the Construction of LDPC Codes," *American Mathematical Society Meeting*, Evanston, Illinois, October 2004.

4. **O. Milenkovic** and B. Vasic, "How DNA Stores Information and Efficient DNA Storage," *DIMACS Workshop on Theoretical Advances In Information Recording*, March 2004.

3. **O. Milenkovic** and K. Compton, "Average Case Analysis of Gosper's Algorithm," *American Mathematical Society Meeting*, Bloomington, Indiana, April 2003.

2. K. Compton and **O. Milenkovic**, "Probabilistic transforms in the analysis of algorithms," *Eight Seminar on Analysis of Algorithms*, Strobl, Austria, June 2002.

1. K. Compton and **O. Milenkovic**, "An Analysis Inspired by Gosper's Algorithm," *Seventh Seminar on Analysis of Algorithms*, Tatihou, France, July 2001.

   REMARK: Some of the listed publications can be found on IEEEexplorer, under Milenkovic O, Milenkovic G (typo) and Olgica M (typo).

TUTORIALS AND KEYNOTES

21. **O. Milenkovic**, TBA, *Plenary Talk,* ISITA 2020, Hawai, USA.

20. **O. Milenkovic**, TBA, *Plenary Talk,* ISTC 2020, Montreal, CA.

19. **O. Milenkovic**, TBA, *Plenary Talk,* ISIT 2020, Los Angeles, USA.

18. **O. Milenkovic**, Submodular Hypergraph Partitioning with Applications, *Plenary Talk,* ITW Visby, Sweden, 2019.

16. **O. Milenkovic**, DNA Punch Cards, *Jack K. Wolf Distinguished Lecture*, UCSD, 2019.

13. **O. Milenkovic**, DNA-based data storage and computing: Analytical and Experimental Challenges, Tutorial, North American School on Information Theory, 2018.

12. **O. Milenkovic**, String reconstruction problems inspired by problems in -omic data analysis, Invited Lecture, LAWC (Latin American Week on Coding and Information), July 2018.

11. **O. Milenkovic**, The helix vault: Storing information in DNA macromolecules, SPAWC, Plenary talk, June 2018.

10. **O. Milenkovic**, New problems in coding theory and computing driven by macromolecule-based data storage, Tutorial, European School on Information Theory, May 2018.

9. **O. Milenkovic**, "DNA-Based Data Storage," IST Young Scientist Symposium, 2017.

8. **O. Milenkovic**, "DNA-Based Data Storage," TCE Conference on Coding for Storage and Information Systems, Technion, 2017.

7. **O. Milenkovic**, Compressive Sensing: From Theory to Practice, Shannon Centennial, Bell Labs, 2016.

6. **O. Milenkovic**, Keynote at IARPA/SRC Workshop on DNA-based Massive Information Storage, 2016.

5. **O. Milenkovic**, Coding Techniques for Emerging DNA-Based Storage Systems, LIDS Student Conference, 2016.

4. M. Kim and **O. Milenkovic**, Genomic Big Data Processing, ICASSP 2015, Brisbane, Australia.

3. S. Aviran and **O. Milenkovic**, An introduction to molecular biology and bioinformatics for information theorists, ISIT 2012, Boston, USA.

2. **O. Milenkovic**, "Iterative Algorithms for Vote Aggregation," International Symposium on Turbo Codes and Iterative Information Processing, Sweden, 2012.

1. **O. Milenkovic**, Information-Theoretic Methods for Reverse Engineering the Topology and Dynamics of Gene Regulatory Networks, *Algebraic Methods in Systems Biology and Statistics Transition Workshop*, Statistical and Applied Mathematical Sciences Institute (SAMSI), Duke University, NC 2009.

INVITED TALKS

List contains Invited Talks and Seminar Talks.

64. Coding for Molecular Data Storage, **O. Milenkovic**, NSF Workshop on Coding and Information Theory in MB, January 2020.

63. TBA, **O. Milenkovic**, CTW Banff, 2020.

63. TBA, **O. Milenkovic**, *Distinguished Lecture*, NMSU, March 2020.

62. **O. Milenkovic**, DNA Punch Cards, *ISIT Invited Sessions*, Paris 2019.

61. **O. Milenkovic**, String Reconstruction Problems, *Lorne Campbell Distinguished Lecture*, Queens University, November 2019.

60. **O. Milenkovic**, DNA Punch Cards, *Jack K. Wolf Distinguished Lecture*, UCSD, May 2019.

59. **O. Milenkovic**, *Access-Balanced Distributed Storage Codes via MaxMin Sum Steiner Triple Systems*, Munich Workshop on Coding and Applications, 2017.

58. **O. Milenkovic**, *Portable and Random-Access DNA-Based Storage Systems*, The 7th Annual Henry Taub TCE Conference on Coding for Storage and Information Systems, Technion, 2017 **(Taub distinguished lecture)**.

57. O. Milenkovic, Banbury Workshop on Molecular Data Storage, 2017.

56. O. Milenkovic, "DNA-Based Data Storage," IST Young Scientist Symposium, 2017 (Keynote).

55. O. Milenkovic, "DNA-Based Data Storage," TCE Conference on Coding for Storage and Information Systems, 2017 (Keynote).

54. **O. Milenkovic**, *Coding for DNA-Based Data Storage*, Rutgers University, 2016.

53. **O. Milenkovic**, *Community Detection via Correlation and Overlapping Correlation Clustering*, EPFL, 2016.

52. **O. Milenkovic**, *Community Detection via Correlation and Overlapping Correlation Clustering*, Cergy Pontoise, 2016.

51. **O. Milenkovic**, *Motif Correlation Clustering*, NEXUS Central Workshop, Institute Henri Poincare, 2016.

50. **O. Milenkovic**, *Coding for DNA-Based Storage*, IARPA/SRC Workshop on DNA-based Massive Information Storage, 2016 **(plenary lecture)**.

49. **O Milenkovic**, *Compressive Sensing*, Shannon Centennial, Bell Labs, 2016.

48. **O Milenkovic**, *DNA-Based Data Storage: Theory and Practice*, LIDS MIT Student Conference, Plenary Speaker, 2016.

47. **O Milenkovic**, *Coding Techniques for Emerging DNA-Based Storage Systems*, Harvard University, November 2015.

46. **O Milenkovic**, *Coding Techniques for Emerging DNA-Based Storage Systems*, Caltech Communication Seminar, November 2015.

45. **O Milenkovic**, *Functional Correlation Clustering with Applications to Cancer Genomics*, Boston University, August 2015.

45. **O Milenkovic**, *Functional Correlation Clustering with Applications to Cancer Genomics*, Distinguished Lecturer Seminar, University of Pennsylvania, March 2015.

44. **O Milenkovic**, *Random Access, Rewritable DNA-Based Storage*, University of Minnesota, January 2015.

43. **O Milenkovic**, *Novel Distance Measures for Vote Aggregation*, University of Maryland, October 2012.

42. **O Milenkovic**, *A Mathematical History of Democracy*, Georgia Tech, May 2012.

41. **O. Milenkovic**, *Distance measures for permutations with applications in rank aggregation*, University of Texas, Austin, December 2011.

40. **O. Milenkovic**, *Distance measures for permutations*, Rutgers University, November, 2011.

39. **O. Milenkovic**, *Low-rank completion with applications in Bioinformatics*, Telecom, Paris, July 2011.

38. **O. Milenkovic**, *Low-rank completion with applications in Bioinformatics*, University of Maryland, April 2011.

37. **O. Milenkovic**, *Low-rank completion with applications in Bioinformatics and Imaging*, Johns Hopkins, March 2011.

36. **O. Milenkovic**, *Sorting Permutations by Cost-Constrained Compositions*, Harvard, March 2011.

35. **O. Milenkovic**, *Sorting Permutations by Cost-Constrained Compositions*, MIT, November 2010.

34. **O. Milenkovic**, *Reconstructing Strings using Multiset Traces*, UCLA, October 2010.

33. **O. Milenkovic**, *Low-Rank Matrix Completion for Inferring Protein-Protein Interactions*, King's College London, September 2010.

32. **O. Milenkovic**, *Sorting by Cost-Constrained Transpositions*, University of Bristol, UK, August, 2010.

31. **O. Milenkovic**, *Sorting by Cost-Constrained Transpositions, University of California*, San Diego, July 2010.

30. **O. Milenkovic**, *Low-Rank Matrix Completion for Inferring Protein-Protein Interactions*, University of California, Berkeley, April, 2010.

29. **O. Milenkovic**, *Low-Rank Matrix Completion*, EPFL, July 2009.

28. **O. Milenkovic**, *On the interplay between coding theory and compressed sensing*, Applied Mathematics Seminar, Princeton University, March 2009.

27. **O. Milenkovic**, *Good-Turing Estimation in the Presence of Repetition Errors*, Mathematical Biology Seminar, UIUC, February 2009.

26. **O. Milenkovic**, *Rate-Distortion Functions for Compressive Sensing*, DSP Seminar, February 2009.

25. **O. Milenkovic**, *On the Interplay between Coding Theory and Compressive Sensing*, University College Cork, Electrical Engineering Department, Ireland, January 2009 (a joint work with Wei Dai).

24. **O. Milenkovic**, *Hardness of Approximation and New Automorphism Group Decoding Algorithms*, Computer Science Theory Seminar, UIUC, November 2008.

23. **O. Milenkovic**, *Superimposed Coding for Integer Compressed Sensing*, Operations Research Department, UIUC, September 2008.

22. **O. Milenkovic**, *An Algebraic Approach to Reverse Engineering of Gene Regulatory Networks*, Department of Mathematics Seminar, Georgia Tech, June 2008.

21. **O. Milenkovic**, *Superimposed Codes in Bioinformatics*, Technisches Universitaet, Munchen, May 2008.

20. O. Milenkovic, On the Interplay between Coding Theory and Compressive Sensing, DPS Seminar, March 2008 (a joint work with Wei Dai).

19. **O. Milenkovic**, *The Stopping Redundancy Hierarchy and Automorphism Group Decoding of Cyclic Codes*, ECE Seminar, University of California, Irvine, April 2007.

18. **O. Milenkovic**, *Coding Theoretic Problems in Genetic Data Acquisition, Modelling and Analysis*, ECE Seminar, University of Illinois, Urbana-Champaign, April 2007.

17. **O. Milenkovic**, *Average Case Analysis of Gosper's Algorithm for Indefinite Summation of Hypergeometric Terms*, STAR Theoretical Computer Science Seminar, University of California, San Diego, March 2007.

16. **O. Milenkovic**, *Probabilistic Transforms for Combinatorial Urn Models*, University of Southern California, Los Angeles, March 2007.

15. **O. Milenkovic**, *Compressed Sensing DNA Microarrays*, University of Washington, Seattle, March 2007.

14. **O. Milenkovic**, *Iterative Automorphism Group Decoding on Redundant Tanner Graphs*, Hewlett Packard Research Labs, December 2006.

13. **O. Milenkovic**, *Probabilistic Transforms for Analyzing Binning Schemes*, University of California, Berkeley, December 2006 (a joint work with K. Compton, University of Michigan, Ann Arbor).

12. **O. Milenkovic**, *Error-Control and Constrained Coding Solutions for DNA Microarrays and Aptamer Array Designs*, University of Southern California ECE Seminar, November 2006.

11. **O. Milenkovic**, *Enumerating RNA Shape Motifs*, Department of Electrical Engineering and Computer Science, University of Michigan, Ann Arbor, October 2006.

10. **O. Milenkovic**, *The Three Faces of Hybridization*, Engineering Department Colloquium, University of Erlangen, June 2006.

9. **O. Milenkovic**, *Two Problems in Analysis of Algorithms*, Department of Mathematics Seminar, Queen's University, March 2006.

8. **O. Milenkovic**, *Linear Programming Decoding, Code Polytopes and Minimal Codewords*, Kempner Colloquium, Department of Mathematics, University of Colorado, Boulder, November 2005 (a joint work with N. Kashyap, Emina Soljanin and Phil Whiting).

7. **O. Milenkovic**, *Minimal Codewords, Code Polytopes and the Complexity of LP Decoding*, Los Alamos National Laboratory, November 2005.

6. **O. Milenkovic**, *Gosper's Algorithm and Probabilistic Analysis of Urn Models*, Murray Hill Mathematics Research Colloquium and Seminar, Bell Labs, Lucent Technologies, June 2005 (a joint work with K. Compton).

5. **O. Milenkovic**, *On the Analysis and Application of LDPC Codes*, Colorado Center for Information Storage Seminar, Boulder, March 2005.

4. **O. Milenkovic**, *Error-Control and Constrained Coding for DNA Computers*, ECE Department Seminar, University of Colorado, Boulder, March 2005 (a joint work with N. Kashyap).

3. **O. Milenkovic**, *Constrained and Error-Control Coding for DNA Computers*, Communications and Signal Processing Laboratory Seminar, University of Maryland, Washington D.C., March 2005 (a joint work with N. Kashyap).

2. **O. Milenkovic**, *Applications of Information Theory in Genetics*, Program in Applied Mathematics Colloquium, University of Arizona, Tucson, November 19, 2004 (a joint work with B. Vasic).

1. **O. Milenkovic**, *On the Information Storage Mechanism of DNA*, ECE Department Seminar, University of Colorado, Boulder, April 2004.

FUNDED PROJECTS

28. (Submitted) NSF Small, Coded String Reconstruction Problems in Molecular Storage (PI), a collaboration with W. Szpankowski, Purdue, 2019.

27. (Submitted) NSF Medium, New Methods for Learning on Hypergraphs for Single-Cell Chromatin Data Analysis (PI), a collaboration with M. Kim and Y. Ruan, Jackson Lab, 2019.

26. (Active) NSF CSoI Seed Funding, Higher-order graph clustering with applications, (UIUC **PI**), with D. Gleich, Purdue University, 2018.

25. (Active) SRC+NSF SemiSynBio, An On-Chip DNA-Based Data Storage System using Chimeric DNA, (**PI**), co-PIs C. Schroeder, Xiuling Li, J.P. Leburton, 2018.

24. (Active) NSF CCF, Leveraging Data Popularity in Distributed Storage via Constrained Combinatorial design, (**PI**), with Charles Colbourn, Arizona State University, 2018.

23. (Active) Chan-Zuckerberg Initiative, The Human Cell Atlas, (**PI**), 2018.

22. (Active) DARPA Molecular Informatics, Native DNA-Based Data Storage and Computing via Nick Displacement (**PI**), co-PIs M. Riedel, D. Soloveichik, H. Zhao, 2017.

21. Mayo Grand Challenge Initiatives, Genomic Data Compression (**co-PI**), 2017.

20. (Active) NSF UCRC CCBG Center, NSF, Genomic Data Compression (PI: R. Iyer), 2017.

19. (Active) NSF-CCF "Coding for DNA-Based Storage Systems," Olgica Milenkovic (**PI**), co-PI Huimin Zhao, UIUC, 2016.

18. NSF-CCF "Ordinal Data Compression," Olgica Milenkovic (**PI**), with Arya Mazumdar, University of Minnesotta, 2015.

17. NSF-CCF "Synchronization and Deduplication of Coded Data," Olgica Milenkovic (**PI**); with UCLA (L. Dolecek) and IIT (S. El Rouyhaeb), 2015.

16. NIH BD2K UO1 "Genomic Compression: From Information Theory to Parallel Algorithms," Olgica Milenkovic (**PI**); Collaborative proposal with Stanford University, PI Tsachy Weissman, $1,300,000.

15. CIA Postdoctoral Fellowship Program, Coding Techniques for Rewritable DNA-Based Storage, 3 years, $354,203, **PI**.

14. NSF IOS "Network Landscape of Photothermal Flowering in Soybean", Olgica Milenkovic (co-PI), Yoshie Hanzawa (PI), UIUC. Estimated amount: 2.5M. Milenkovic: 350K.

13. SRI: Optimizing DNA Storage Efficiency via Joint Constrained and Error-Control Coding, Olgica Milenkovic **PI**, electrical and computer engineering; Jian Ma, bioengineering; Huimin Zhao, chemical and biomolecular engineering, UIUC. Amount: 200K.

12. NSF CIF: A General Theory of Group Testing for Genotyping, **PI**, co-PI A. Barg (University of Maryland). Total amount: 500K. Milenkovic: 250K.

11. NSF CCF, Nonlinear Low-Rank Tensor Completion with Applications in Systems Biology, **PI**, co-PIs: Ely Kerman and Pierre Moulin, Total amount: 480K. Milenkovic: 250K.

10. (Active) NSF STC, Information Theory Beyond Shannon, **PI**, Total amount: 1.2M. Milenkovic: 320K.

9. AFRLDL-EBSAFOSR, Compressive Sensing and Coding for Complex Networks, **PI**, co-PI: Andjelija Nedich, UIUC. Total amount: 460K. Milenkovic: 240K.

8. NSF (CCF 0729216) Collaborative Research: CCF - Design and Analysis of Compressed Sensing DNA Microarrays, (**PI**), August 2008. Supplementary funding.Total amount: 200K.

7. NSF (CCF 0729216) Collaborative Research: CCF - Design and Analysis of Compressed Sensing DNA Microarrays, (**PI**), February 2007. Co-PIs: Richard Baraniuk (Rice University), Eleazar Eskin (UCLA), Alon Orlitsky and Tajana Simunic (UCSD). Total amount: 1.5 million $. Milenkovic: 300K.

6. NSF - Career (CCF 0644427): Coding Theoretic Problems in Genetic Data Acquisition, Modeling, and Analysis, (**PI**), March 2007 - March 2011. Milenkovic (**sole PI**): 400K.

5. DARPA Young Investigator Award: Belief Propagation Algorithms for Compressed Biosensing, (**PI**), December 2006. Milenkovic (sole PI): 150K.

4. NSF (CNS 0454404) CRI: Wireless Internet Building Blocks for Research, Policy, and Education (**Co-PI**), August 2005 - August 2008. **PI**: Dirk Grunwald. **co-PIs**: Tim Brown, Olgica Milenkovic.

3. NSF (CCF 0514875) Collaborative Research: Constrained and Error-Control Coding for DNA Computers (**PI**), August 2005 - August 2006.

2. Colorado Center for Information Storage: Construction and Analysis of Generalized LDPC Codes for Storage and Optical Communication Systems (**PI**).

1. Ensured the *Lincoln Lab Fellowship* for David Leyba, September 2004 - September 2005; Ensured research fellowship from Erlangen University for Stefan Laendner, September 2005; Received support for developing an interdisciplinary class in information theory and biology from the Bernard Gordon Price awarded to Dr. Frank Barns, 2004.

PATENTS

Native DNA-Based Data Storage, filed 2018.

Portable DNA-Based Data Storage, filed November 2016, approved December 2018.

Random-access, Rewritable DNA-Based Storage, filled 2016, approved 2019.

PROFESSIONAL ASSOCIATIONS

Guest Editor in Chief for the special issue of the *IEEE Transactions on Information Theory* on Applications of Information Theory to Molecular Biology and Neuroscience, 2009.

Associate Editor for *IEEE Transactions on Communication*, 2007-2011.

Associate Editor for *IEEE Transactions on Signal Processing*, 2009-2012.

Associate Editor for *IEEE Transactions on Information Theory*, 2011-2014.

Guest Editor-in-Chief, *IEEE Transactions on Information Theory*, Special Issue in memory of V. I. Levenshtein, 2019.

Associate Editor for *IEEE Transactions on Molecular, Biological and Multi-Scale Communications*, 2016-2018.

Co-Chair, Annual Allerton Conference on Communication, Control and Computing, 2013-2014.

Technical Program Committee Co-Chair, International Symposium on Information Theory, Honolulu 2014.

Technical Program Committee Co-Chair, International Workshop on Information Theory, Italy 2020.

Member of the Institute of Electrical and Electronics Engineers (IEEE) and the American Mathematical Society (AMS)

Reviewer for *SIAM Journal on Discrete Mathematics*, *IEEE Transactions on Information Theory*, *IEEE Transactions on Communication Theory*, *IEEE Communication Letters*, ISIT, ICC etc.

Session Chair, *42nd Allerton Conference on Communications, Control and Computing*, 2003.

Session Chair, *Global Communications Conference - Globecom*, Dallas, TX, 2005.

Book Proposal Review, Prentice Hall, 2007.

Session Chair, *44th Allerton Conference on Communications, Control and Computing*, 2006.

Session Chair, *ISIT'07*, Nice, France, 2007.

Session organizer, *40th Asilomar Conference on Signals, Systems and Computers*, Communications and Networking Track, 2006.

Session Chair, *Second Annual ITA Workshop*, San Diego, CA, 2007.

Session Organizer/Session Chair, *Third Annual ITA Workshop*, San Diego, CA, 2008.

Session Chair, *American Mathematical Society (AMS) Meeting*, Bloomington, Indiana, 2008.

Session organizer, Intermag 2007.

Book Reviewer, Prentice Hall 2007.

Technical Program Committee Member, *IEEE International Conference on Communication*, Istanbul, Turkey, 2006.

Technical Program Committee Member, *IEEE Information Theory Workshop*, Lake Tahoe, 2007.

Technical Program Committee Member, *IEEE Wireless Communications and Networking Conference*, Las Vegas, 2008.

Technical Program Committee Member, *IEEE Information Theory Workshop*, Portugal, 2008.

Technical Program Committee Member, *Globecom*, New Orleans, 2008.

Technical Program Committee Member, *ICC*, Dresden, Germany, 2009.

Technical Program Committee Member, *IEEE Information Theory Workshop*, Volos, Greece, 2009.

Session organizer (Biology), *IEEE Information Theory Workshop*, Volos, Greece, 2009.

Track Chair for "Engineering Models in Bio-Medicine", IEEE Conference on Bioinformatics and Bioengineering (BIBE) 2008.

Technical Program Committee Member, *ISIT'2009*, Seul, Korea.

Technical Program Committee Member, *Information Theory and Statistical Learning*, ITSL'2008, Las Vegas, Nevada, 2008.

Committee member, 2007 Best paper in Signal Processing and Coding for Data Storage.

External Reviewer for the Senior Lecture Promotion Committee, University of Cork, Ireland.

External Examiner, University College of Cork, Ireland.

DIMACS (Discrete Mathematics and Computer Science) Workshop Organizer, Topic: DIMACS/DyDAn Workshop on Streaming, Coding, and Compressive Sensing: Unifying Theory and Common Applications to Sparse Signal/Data Analysis and Processing, March 2009.

Allerton Conference 2008 Session Organizer: Compressive sensing and Novel Directions in Optimization Theory, Coding Theory I and II, Emerging Applications of Information Theory.

Session chair, ITA 2009, San Diego California.

Co-Organizer, ITA Mini Workshop on Information theory in viral evolution modeling, 2008/2009, San Diego California (jointly with S. McLaughlin, P. Tetali, and A. Orlitsky).

Invitee and Session Lead, "Information Theory Beyond Shannon", Venice, Italy, December 2008.

Chair, poster session on Identification and Classification of Genomic Structure, GENSIPS'2009.

Technical Program Committee Member, ISIT'2010, Austin, Texas.

Technical Program Committee Member, ITW'2010, Cairo, Egypt, 2010.

Allerton Conference Session Organizer (four sessions), 2009.

Allerton Conference Session Organizer (seven sessions), 2010.

Technical Program Committee Member, ISIT'2011, Saint Petersburg, Russia.

Technical Program Committee Member, Globecom'2011, Dallas, Texas.

Technical Program Committee Co-Chair, ISIT'2014, Honolulu, Hawaii.

Special Session Organizer, Information Theory Workshop (ITW), Paraty, Brazil, 2011.

Session Organizer (6 sessions), Allerton Conference, 2011.

Workshop Co-Organizer, IMA Workshop on Group Testing in Life Sciences, Minnesotta, 2012.

Technical Program Committee Member, Information Theory Workshop (ITW), Lausanne, Switzerland, 2012.

Technical Program Committee Member, International Symposium on Information Theory (ISIT), Boston, USA, 2012.

Technical Program Committee Member, International Symposium on Turbo Coding and Iterative Information Processing, Gothenburg, Sweden, 2012.

Session Organizer (1 session) in Bioinformatics, Asilomar Conference, October 2012.

Technical Program Committee Member, Statistical Signal Processing Workshop, Ann Arbor, MI 2012.

Workshop Organizer, NIPS 2012 (Social Choice: Theory and Practice). Co-organizers: Behrouz Touri and Faramarz Fekri.

Workshop Organizer, ICC 2013 (Personalization Systems). Co-organizers: Behrouz Touri and Faramarz Fekri.

Technical Program Committee Member, Information Theory Workshop, Seville, Spain 2013.

Technical Program Cochair, International Symposium on Information Theory, Hawaii, 2014.

Technical Program Committee Member, Turbo Coding Symposium, Germany, 2014.

Center of Science of Information Postdoctoral Fellow Awards Committee, Chair, 2014.

Invited Session Organizer (2 sessions), Asilomar Conference, 2014.

Globalsip Workshop co-organizer, 2014.

TPC member, ISIT 2015.

Member of Future Directions in Information Theory Committee, 2014-2015.

Member of SPS Big Data Working Group, 2014-2015.

Member of the J. Massey Junior Faculty Award Committee, 2015.

TPC member, ISIT 2016.

TPC member, ISIT 2017.

TPC member, ISIT 2018.

TPC member, DNA 24 2018.

Co-Organizer (with P. Rose, UCSD), Special Session at ISMB 2016 on Compressive Omics: Making Big Data Manageable through Data Compression.

TPC member, RECOMB-Seq Workshop on Massively Parallel Sequencing, 2017.

IEEE Information Theory Society Awards Committee, 2017, 2018.

IEEE Joint Information Theory and COMSOC Society Awards Committee, 2017, 2018.

Globalsip, Tutorial Chair, 2019.

ITA 2019 Plenary Session Organizer, 2019.

ITW 2020 TPC Co-Chair.

TPC member, DNA 26, 2020.