

Publications

Books

J. Voges

Compression of DNA Sequencing Data

VDI Verlag, 2022

DOI: [10.51202/9783186878106-I](https://doi.org/10.51202/9783186878106-I)

Journal Articles

Y. G. Adhisantoso, J. Voges, C. Rohlfing, V. Tunev, J.-R. Ohm, and J. Ostermann

GVC: efficient random access compression for gene sequence variations

BMC Bioinformatics, vol. 24, no. 1, p. 121, Mar. 2023

DOI: [10.1186/s12859-023-05240-0](https://doi.org/10.1186/s12859-023-05240-0)

J. Voges, M. Hernaez, M. Mattavelli, and J. Ostermann

An Introduction to MPEG-G: The First Open ISO/IEC Standard for the Compression and Exchange of Genomic Sequencing Data

Proceedings of the IEEE, vol. 109, no. 9, pp. 1607-1622, Sep. 2021

DOI: [10.1109/JPROC.2021.3082027](https://doi.org/10.1109/JPROC.2021.3082027)

J. Voges, T. Paridaens, F. Müntefering, L. S. Mainzer, B. Bliss, M. Yang, I. Ochoa, J. Fostier, J. Ostermann, and M. Hernaez

GABAC: an arithmetic coding solution for genomic data

Bioinformatics, vol. 36, no. 7, pp. 2275-2277, Apr. 2020

DOI: [10.1093/bioinformatics/btz922](https://doi.org/10.1093/bioinformatics/btz922)

T. Laude, Y. G. Adhisantoso, J. Voges, M. Munderloh, and J. Ostermann

A Comprehensive Video Codec Comparison

APSIPA Transactions on Signal and Information Processing, vol. 8, no. 1, Nov. 2019

DOI: [10.1017/ATSIP.2019.23](https://doi.org/10.1017/ATSIP.2019.23)

Resources: [main paper](#) (PDF)

J. Voges, A. Fotouhi, J. Ostermann, and M. O. Külekci

A Two-Level Scheme for Quality Score Compression

Journal of Computational Biology, vol. 25, no. 10, pp. 1141–1151, Oct. 2018

DOI: [10.1089/cmb.2018.0065](https://doi.org/10.1089/cmb.2018.0065)

Resources: [main paper](#) (PDF)

J. Voges, J. Ostermann, and M. Hernaez

CALQ: compression of quality values of aligned sequencing data

Bioinformatics, vol. 34, no. 10, pp. 1650-1658, May 2018

DOI: [10.1093/bioinformatics/btx737](https://doi.org/10.1093/bioinformatics/btx737)

I. Numanagić, J. K. Bonfield, F. Hach, J. Voges, J. Ostermann, C. Alberti, M. Mattavelli, and S. C. Sahinalp
Comparison of high-throughput sequencing data compression tools
Nature Methods, vol. 13, no. 12, pp. 1005–1008, Dec. 2016
DOI: [10.1038/nmeth.4037](https://doi.org/10.1038/nmeth.4037)

Patents

Others pending

M. Munderloh, J. Voges and J. Ostermann

Method for compressing genomic data

[EP3311318](#), Sep. 2023

J. Voges and J. Ostermann

Method for encoding and decoding of quality values of a data structure

[EP3652862](#), Jun. 2022

J. Voges and J. Ostermann

Method for encoding and decoding of quality values of a data structure

[US10938415](#), Mar. 2021

Conference Papers

C. Rohlfing, T. Meyer, J. Schneider, and J. Voges

Python Wrapper for Context-based Adaptive Binary Arithmetic Coding

2023 IEEE International Conference on Visual Communications and Image Processing (VCIP), Dec. 2023

Resources: [link](#), [main paper \(PDF\)](#)

I. Ochoa, H. Li, F. Baumgarte, C. Hergenrother, J. Voges, and M. Hernaez

AliCo: A New Efficient Representation for SAM Files

2019 Data Compression Conference (DCC), pp. 93–102, Mar. 2019

DOI: [10.1109/DCC.2019.00017](https://doi.org/10.1109/DCC.2019.00017)

T. Laude, Y. G. Adhisantoso, J. Voges, M. Munderloh, and J. Ostermann

A Comparison of JEM and AV1 with HEVC: Coding Tools, Coding Efficiency and Complexity

2018 Picture Coding Symposium (PCS), pp. 36–40, Jun. 2018

DOI: [10.1109/PCS.2018.8456291](https://doi.org/10.1109/PCS.2018.8456291)

A. A. Hernandez-Lopez, J. Voges, C. Alberti, M. Mattavelli, and J. Ostermann

Lossy Compression of Quality Scores in Differential Gene Expression: A First Assessment and Impact Analysis

2018 Data Compression Conference (DCC), pp. 167–176, Mar. 2018

DOI: [10.1109/DCC.2018.00025](https://doi.org/10.1109/DCC.2018.00025)

A. A. Hernandez-Lopez, J. Voges, C. Alberti, M. Mattavelli, and J. Ostermann

Differential Gene Expression with Lossy Compression of Quality Scores in RNA-Seq Data

2017 Data Compression Conference (DCC), p. 444, Apr. 2017

DOI: [10.1109/DCC.2017.75](https://doi.org/10.1109/DCC.2017.75)

C. Alberti, N. Daniels, M. Hernaez, J. Voges, R. L. Goldfeder, A. A. Hernandez-Lopez, M. Mattavelli, and B. Berger

An Evaluation Framework for Lossy Compression of Genome Sequencing Quality Values

2016 Data Compression Conference (DCC), pp. 221–230, Mar. 2016

DOI: [10.1109/DCC.2016.39](https://doi.org/10.1109/DCC.2016.39)

J. Voges, M. Munderloh, and J. Ostermann

Predictive Coding of Aligned Next-Generation Sequencing Data

2016 Data Compression Conference (DCC), pp. 241–250, Mar. 2016
DOI: [10.1109/DCC.2016.98](https://doi.org/10.1109/DCC.2016.98)

Preprints

F. Muntefering, Y. G. Adhisantoso, S. Chandak, J. Ostermann, M. Hernaez, and J. Voges

Genie: The First Open-Source ISO/IEC Encoder for Genomic Data

Research Square, May 2023

DOI: [10.21203/rs.3.rs-2628031/v1](https://doi.org/10.21203/rs.3.rs-2628031/v1)

C. Alberti, T. Paridaens, J. Voges, D. Naro, J. J. Ahmad, M. Ravasi, D. Renzi, G. Zoia, P. Ribeca, I. Ochoa, M. Mattavelli, J. Delgado, and M. Hernaez

An introduction to MPEG-G, the new ISO standard for genomic information representation

bioRxiv, Oct. 2018

DOI: [10.1101/426353](https://doi.org/10.1101/426353)

Conference Talks

F. Muntefering, J. Ostermann, and J. Voges

BACON: Bacterial Clone Recognition from Metagenomic Sequencing Data

Presented by FM (Best Presentation Award)

AICPM 2023, Sep. 2023

Resources: [abstract](#) ([PDF](#))

Y. G. Adhisantoso, J. Voges, and J. Ostermann

PEKORA: High-Performance 3D Genome Reconstruction Using K-th Order Spearman's Rank Correlation Approximation

Presented by YGA

ISMB/ECCB 2023 (HiTSeq track), Jul. 2023

Resources: [abstract](#) ([PDF](#))

Posters

T. Paridaens, J. Voges, M. Hernaez, J. Fostier, and J. Ostermann

GABAC: an arithmetic coding solution for genomic data

ISMB/ECCB 2019, Aug. 2019

DOI: [10.7490/f1000research.1117346.1](https://doi.org/10.7490/f1000research.1117346.1)

J. Voges and J. Ostermann

MPEG-G: The Emerging Standard for Genomic Data

GCB 2017, Sep. 2017

DOI: [10.7287/peerj.preprints.3268v1](https://doi.org/10.7287/peerj.preprints.3268v1)

Resources: [poster](#) ([PDF](#))

J. Voges, J. Ostermann, and M. Hernaez

CALQ: compression of quality values of aligned sequencing data

ISMB/ECCB 2017, Aug. 2017

DOI: [10.7490/f1000research.1114635.1](https://doi.org/10.7490/f1000research.1114635.1)