Supplementary Material

Computational Pan-Genomics: Status, Promises and Challenges

List of authors

Tobias Marschall[1,2] Manja Marz[3,4,5,6] Thomas Abeel[7,8] Louis Dijkstra[9,10] Bas E. Dutilh[11,12,13] Ali Ghaffaari[1,2] Paul Kersey[14] Wigard P. Kloosterman[15] Veli Mäkinen[16] Adam M. Novak[17] Benedict Paten[17] David Porubsky[18] Eric Rivals[19,20] Can Alkan[21] Jasmijn A. Baaijens[22] Paul I. W. De Bakker[15] Valentina Boeva[23,24,25,26] Raoul J. P. Bonnal[27] Francesca Chiaromonte[28,29] Rayan Chikhi[30] Francesca D. Ciccarelli[31] Robin Cijvat[32] Erwin Datema[33] Cornelia M. Van Duijn[34] Evan E. Eichler[35,36] Corinna Ernst[37] Eleazar Eskin[38,39] Erik Garrison[40] Mohammed El-Kebir[22,41,42] Gunnar W. Klau[22] Jan O. Korbel[14,43] Eric-Wubbo Lameijer[44] Benjamin Langmead[45] Marcel Martin[46] Paul Medvedev[47,48,29] John C. Mu[49] Pieter Neerincx[44] Klaasjan Ouwens[50,51] Pierre Peterlongo[52] Nadia Pisanti[53,54] Sven Rahmann[37] Ben Raphael[42] Knut Reinert[55] Dick de Ridder[56] Jeroen de Ridder[15] Matthias Schlesner[57] Ole Schulz-Trieglaff[58] Ashley D. Sanders[59] Siavash Sheikhizadeh[56] Carl Shneider[60] Sandra Smit[56] Daniel Valenzuela[16] Jiayin Wang[61,62,63] Lodewyk Wessels[64] Ying Zhang[32,22] Victor Guryev[18] Fabio Vandin[65,66,42] Kai Ye[67,68,63] Alexander Schönhuth[22]

List of affiliations

1. Center for Bioinformatics, Saarland University, Saarland Informatics Campus, 66123 Saarbrücken, Germany
2. Max Planck Institute for Informatics, Saarland Informatics Campus, 66123 Saarbrücken, Germany
3. Bioinformatics and High Throughput Analysis, Faculty of Mathematics and Computer Science, Friedrich Schiller University Jena, Leutragraben 1, 07743 Jena, Germany
4. FLI Leibniz Institute for Age Research, Beutenbergstraße 11, 07745 Jena, Germany
5. Michael Stifel Center Jena, Ernst-Abbe-Platz 2, 07743 Jena, Germany
6. German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena-Leipzig
7. Delft Bioinformatics Lab, Delft University of Technology, Delft, The Netherlands
8. Broad Institute of MIT and Harvard, Cambridge, Massachusetts, USA
9. Computational Science Lab, University of Amsterdam, Amsterdam, 1098XG, The Netherlands
10. Department of High Performance Computing, ITMO University, Saint Petersburg, 197101, Russia
11. Radboud Institute for Molecular Life Sciences, Center for Molecular and Biomolecular Informatics, Radboud University Medical Center, Nijmegen, Netherlands
12. Theoretical Biology and Bioinformatics, Utrecht University, Utrecht, Netherlands
13. Department of Marine Biology, Institute of Biology, Federal University of Rio de Janeiro, Rio de Janeiro, Brazil
14. EMBL-European Bioinformatics Institute, Wellcome Trust Genome Campus, Hinxton, CB10 1SD, UK
15. Department of Genetics, Center for Molecular Medicine, University Medical Center Utrecht, 3584 CG, Utrecht, The Netherlands
16. HIIT and Department of Computer Science, University of Helsinki, Finland
17. UC Santa Cruz Genomics Intsitute, University of California Santa Cruz, Santa Cruz, CA 95064, USA
18. European Research Institute for the Biology of Ageing, University Medical Center Groningen, University of Groningen, Antonius Deusinglaan 1, AV Groningen 9713, The Netherlands
19. LIRMM, CNRS and Université de Montpellier, Montpellier, France
20. Institut de Biologie Computationnelle, CNRS and Université de Montpellier, Montpellier, France
21. Department of Computer Engineering, Bilkent University, Bilkent, Ankara, 06800, Turkey
22. Life Sciences Group, Centrum Wiskunde & Informatica, Amsterdam, 1098XG, The Netherlands
23. Institut Curie, Centre de Recherche, Inserm U900, F-75005 Paris, France
24. Mines ParisTech, F-77305 cedex Fontainebleau, France
25. PSL Research University, F-75005 Paris, France
26. Institut Cochin, Inserm U1016, CNRS UMR 8104, Université Paris Descartes UMR-S1016, F-75014 Paris, France
27. Istituto Nazionale Genetica Molecolare INGM, 'Romeo ed Enrica Invernizzi', Milan 20122, Italy.
28. Department of Statistics, The Pennsylvania State University, University Park, PA, 16802, USA
29. Genome Sciences Institute (Huck Institutes of the Life Sciences), The Pennsylvania State University, University Park, PA, 16802, USA
30. CNRS, Univ. Lille, UMR 9189 CRIStAL, F-59000 Lille, France
31. Division of Cancer Studies, King's College London, London SE11UL, UK

32 MonetDB Solutions, Amsterdam, The Netherlands

33 KeyGene N.V, Agro Business Park 90, 6708 PW Wageningen, The Netherlands

34 Department of Epidemiology, Erasmus Medical Center, Rotterdam, The Netherlands

35 Department of Genome Sciences, University of Washington, Seattle, WA, 98195, USA

36 Howard Hughes Medical Institute, University of Washington, Seattle, WA, 98195, USA

37 Genome Informatics, Institute of Human Genetics, University Hospital Essen, University of Duisburg-Essen, Essen, Germany

38 Department of Computer Science, University of California, Los Angeles, USA

39 Department of Human Genetics, University of California, Los Angeles, USA

40 Wellcome Trust Sanger Institute, Cambridge, UK

41 Centre for Integrative Bioinformatics VU (IBIVU), VU University Amsterdam, De Boelelaan 1081A, 1081 HV Amsterdam, The Netherlands

42 Center for Computational Molecular Biology and Department of Computer Science, Brown University, Providence, RI 02912, USA

43 European Molecular Biology Laboratory (EMBL), Genome Biology Unit, Meyerhofstrasse 1, 69117 Heidelberg, Germany

44 Genomics Coordination Center, University of Groningen, University Medical Center Groningen, Groningen, 9700RB, The Netherlands

45 Department of Computer Science and Center for Computational Biology, Johns Hopkins University, Baltimore, Maryland

46 Science for Life Laboratory, Dept. of Biochemistry and Biophysics, Stockholm University, Box 1031, SE-17121 Solna, Sweden

47 Department of Computer Science and Engineering, The Pennsylvania State University, University Park, PA, 16802, USA

48 Department of Biochemistry and Molecular Biology, The Pennsylvania State University, University Park, PA, 16802, USA

49 Bina Technologies, Roche Sequencing, Redwood City, CA 94065, USA

50 Biological Psychology, Vrije Universiteit Amsterdam, The Netherlands

51 Genalice BV, Harderwijk, The Netherlands

52 IRISA Inria Rennes Bretagne Atlantique, GenScale team, Campus de Beaulieu, 35042 Rennes, France

53 Dipartimento di Informatica, University of Pisa, Pisa, Italy

54 Erable Team, INRIA

55 Department of Mathematics and Computer Science, Freie Universität Berlin, Berlin, Germany

56 Bioinformatics Group, Wageningen University, Droevendaalsesteeg 1, 6708 PB, Wageningen, The Netherlands

57 Division of Theoretical Bioinformatics, German Cancer Research Center (DKFZ), Im Neuenheimer Feld 280, 69120 Heidelberg, Germany

58 Illumina Cambridge Ltd, Chesterford Research Park, Little Chesterford, Essex CB10 1XL, UK

59 Terry Fox Laboratory, BC Cancer Agency, Vancouver, British Columbia, Canada

60 Leiden Observatory, Leiden University, P.O. Box 9513, 2300 RA Leiden, The Netherlands

61 School of Management, Xi'an Jiaotong University, Xi'an, Shaanxi 710049, China

62 Institute of Data Science and Information Quality, Xi'an Jiaotong University

63 Shaanxi Engineering Research Center of Medical and Health Big Data, Xi'an Jiaotong University, Xi'an, Shaanxi, 710049, China

64 Netherlands Cancer Institute (NKI), Amsterdam, the Netherlands

65 Department of Information Engineering, University of Padova, Via Gradenigo 6/B, I-35131, Padova, Italy

66 Department of Mathematics and Computer Science, University of Southern Denmark, Campusvej 55, DK-5230, Odense M, Denmark

67 School of Electronic and Information Engineering, Xi'an Jiaotong University, Xi'an, Shaanxi 710049, China

68 The First Affiliated Hospital of Xi'an Jiaotong University, Xi'an, Shaanxi, 710061, China