Ghanshyam Chandra
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Education

Indian Institute of Science — Bangalore, India
PhD in Computational and Data Sciences — *Oct 2020 – Present*

National Institute of Technology — Raipur, India
Bachelor of Technology (Hons) in Mechanical Engineering — *July 2016 – July 2020*

Honors and Awards

- **Winner:** National HPC Hackathon 2021. (Awarded `AWS` credits worth 10,000 USD)
  Organised by Intel India and AWS in association with Govt. of India.
- **Empower Program:** Awarded research funding from Kotak-IISc AI ML Center.

Journal Publication

- **Genome Research 2024**
  Haplotype-aware Sequence Alignment to Pangenome Graphs.
  Ghanshyam Chandra, Daniel Gibney and Chirag Jain. Genome Research. (Invited paper, RECOMB'24 extended version, under revision)
- **AMB 2024**
  Co-linear Chaining on Pangenome Graphs.
  Jyotshna Rajput, **Ghanshyam Chandra** and Chirag Jain. Algorithms for Moleculer Biology. doi.org/10.1186/s13015-024-00250-w (Invited paper, WABI'23 extended version)
- **JCB 2023**
  Gap-Sensitive Co-Linear Chaining Algorithms for Acyclic Pangenome Graphs.
  Ghanshyam Chandra and Chirag Jain. Journal of Computational Biology. doi.org/10.1089/cmb.2023.0186 (Invited paper, RECOMB'23 extended version)

Refereed Conference Publications

- **RECOMB 2024**
  Haplotype-aware Sequence-to-Graph Alignment.
  Ghanshyam Chandra, Daniel Gibney and Chirag Jain. International Conference on Research in Computational Molecular Biology. (acceptance rate: 16%) doi.org/10.1101/2023.11.15.566493
- **WABI 2023**
  Co-linear Chaining on Pangenome Graphs.
  Jyotshna Rajput, **Ghanshyam Chandra** and Chirag Jain. 23rd International Workshop on Algorithms in Bioinformatics (WABI 2023). doi.org/10.4230/LIPIcs.WABI.2023.12
- **RECOMB 2023**
  Sequence to Graph Alignment Using Gap-Sensitive Co-linear Chaining.
  Ghanshyam Chandra and Chirag Jain. International Conference on Research in Computational Molecular Biology. (acceptance rate: 20%) doi.org/10.1007/978-3-031-29119-7_4

Manuscripts in Preparation

- Accelerating Whole-Genome Alignment using Parallel Chaining Algorithm.
  Ghanshyam Chandra, Md Vasimuddin, Sanchit Misra and Chirag Jain.

Teaching and Mentoring

- Teaching assistant for DS295: Parallel Programming (DS295) 2024

Talks

- Haplotype-aware Sequence-to-Graph Alignment.
  RECOMB 2024, MIT, USA.
- Accelerating Whole-Genome Alignment using Parallel Chaining Algorithm.
  RECOMB-Seq 2024, MIT, USA.
- Scalable Algorithms for Genome-aware Sequence-to-Graph Alignment.
  EECS Symposium 2024, IISc Bangalore, India.
- Why Use Human Genome Graphs as a Reference? Insights into Scalable Genome Graph Algorithms.
  IEEE IISc CS&CIS/HKN Mu Xi Deep Tech Outreach Seminar Series 2024, Bangalore, India.
- Sequence to Graph Alignment using Gap-Sensitive Co-linear Chaining.
  RECOMB 2023, Istanbul, Turkey.
- A Scalable Algorithm for Sequence to Graph Alignment.
  EECS Symposium 2023, IISc Bangalore, India.

Poster Presentation

- Minichain: A New Method for Pangenome Graph Construction.
  Ghanshyam Chandra and Chirag Jain. RECOMB Satellite Conference on Biological Sequence Analysis. RECOMB-Seq 2023, Istanbul, Turkey.
- Scaling Sequence to DAG Alignment with Parameterized Gap-Sensitive Co-linear Chaining Algorithms.
  Ghanshyam Chandra and Chirag Jain. IEEE International Conference on High Performance Computing, Data, and Analytics. HiPC 2022, Bangalore, India.

Fellowships

- **Intel India Research Fellowship 2023-24**
- **RECOMB 2023 Travel Fellowship**

Software Developed

- **Minichain:** Genome-aware Long Reads or Phased Contigs Aligner to Acyclic Pangenome Graphs.
- **PanAligner:** Long Reads Aligner to Cyclic Pangenome Graphs.

Academic Service

- **PC member & Reviewer:** AccMLBio (ICML 2024)