Sayan Goswami

Assistant Professor
Computer Science
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Education

Ph.D. **Computer Science**, Louisiana State University, Baton Rouge — August 2019
Dissertation: High-Performance Computing Frameworks for Large-Scale Genome Assembly
Committee: Seung-Jong Park, Kisung Lee, Jianhua Chen

B.Tech. **Computer Science**, National Institute of Technology, Durgapur, India — May 2011

Professional Experience

Assistant Professor, St. Mary's College of Maryland	July 2025 - Present
Postdoctoral Researcher, ETH Zürich	October 2023 - July 2025
Assistant Professor of Computer Science, Ahmedabad University	July 2021 - October 2023
Assistant Professor of Computer Science, LSU Shreveport	July 2019 - May 2021
Graduate Assistant, Louisiana State University	January 2013 - May 2019
Associate Technology, Sapient Global Markets	July 2011 - January 2013

Research Interests

Biological Sequence Analysis, Big Data, Distributed Computing, High-Performance Computing

Techniques & Skills

Sequence Alignment, Sequence Searches and Clustering, C/C++, CUDA, Parallel Programming, Distributed Computing, Python, Linux, Hadoop.

Publications

- **Sayan Goswami**. "*Memory-efficient all-pair suffix-prefix overlaps on GPU*", International Conference on Computational Science (ICCS), 2023.
- **Sayan Goswami**, Kisung Lee, Seung-Jong Park. "*Distributed de novo assembler for large-scale long-read datasets*", IEEE International Conference on Big Data (Big Data), 2020.
- **Sayan Goswami**, Ayam Pokhrel, Kisung Lee, Ling Liu, Qi Zhang, Yang Zhou. "*GraphMap: scalable iterative graph processing using NoSQL.*" The Journal of Supercomputing, 2019.
- Arghya Kusum Das, **Sayan Goswami**, Kisung Lee, Seung-Jong Park. "*A hybrid and scalable error correction algorithm for indel and substitution errors of long reads*", BMC Genomics 20(11), 2019.
- Shayan Shams, **Sayan Goswami**, Kisung Lee. "*Deep Learning-Based Spatial Analytics for Disaster-Related Tweets: An Experimental Study*", Proceedings of the 20th IEEE International Conference on Mobile Data Management (MDM), 2019.

- **Sayan Goswami**, Kisung Lee, Shayan Shams, and Seung-Jong Park. "*GPU-Accelerated Large-Scale Genome Assembly*", Proceedings of the 32nd IEEE International Parallel & Distributed Processing Symposium (IPDPS), 2018.

- Shayan Shams, **Sayan Goswami**, Kisung Lee, Seungwon Yang, and Seung-Jong Park. "*Towards Distributed Cyberinfrastructure for Smart Cities using Big Data and Deep Learning Technologies*", Proceedings of the 38th IEEE International Conference on Distributed Computing Systems (ICDCS), vision track paper, 2018.

- Arghya Kusum Das, Jaeki Hong, **Sayan Goswami**, Richard Platania, Kisung Lee, Wooseok Chang, Seung-Jong Park, and Ling Liu. "*Augmenting Amdahl's Second Law: A Theoretical Model to Build Cost-Effective Balanced HPC Infrastructure for Data-Driven Science*", Proceedings of the 10th IEEE International Conference on Cloud Computing (CLOUD), 2017.

- Arghya Kusum Das, Shayan Shams, **Sayan Goswami**, Richard Platania, Kisung Lee, and Seung-Jong Park. "*ParSECH: Parallel Sequencing Error Correction with Hadoop for Large-Scale Genome*", Proceedings of the 9th International Conference on Bioinformatics and Computational Biology (BICOB), 2017.

- Arghya Kusum Das, Praveen Kumar Koppa, **Sayan Goswami**, Richard Platania, and Seung-Jong Park. "*Large-scale parallel genome assembler over cloud computing environment*", Journal of bioinformatics and computational biology 15.03 (2017).

- **Sayan Goswami**, Arghya Kusum Das, Richard Platania, Kisung Lee, and Seung-Jong Park. "*Lazer: Distributed Memory-Efficient Assembly of Large-Scale Genomes*", Proceedings of the IEEE International Conference on Big Data (IEEE BigData), 2016.

- Praveen Kumar Koppa, Arghya Kusum Das, **Sayan Goswami**, Richard Platania, and Seung-Jong Park. "*Giga: Giraph-based genome assembler for gigabase scale genomes.*" Proceedings of the 8th International Conference on Bioinformatics and Computational Biology (BICOB 2016). 2016.

- Chui-hui Chiu, Nathan Lewis, Dipak Kumar Singh, Arghya Kusum Das, Mohammad M. Jalazai, Richard Platania, **Sayan Goswami**, Kisung Lee, and Seung-Jong Park. "*Bic-lsu: Big data research integration with cyberinfrastructure for lsu*", Proceedings of the XSEDE16 Conference on Diversity, Big Data, and Science at Scale, ACM, 2016.

Teaching Experience

Courses designed & taught at Ahmedabad University:

- Introduction to Datastructures and Algorithms	Monsoon 21, 22, 23
- Computer Organization	Monsoon 22, 23
- Sequence Analysis Algorithms	Monsoon 21
- Parallel Programming using GPUs	Monsoon 21

Courses designed & taught at LSU Shreveport:

- Big Data Analysis	Spring 21
- Introduction to Programming (Python)	Spring 21, Fall 20, Summer 20, Spring 20
- Object-Oriented Programming I (Java)	Spring 20
- Object-Oriented Design (Java)	Spring 21, Fall 20, Spring 20, Fall 19
- Rapid Application Development (Visual C#)	Fall 20, Fall 19

Teaching assistance at LSU Baton Rouge:

- Big Data Technologies	Spring 18, Spring 17 and Spring 16
- Stats & Graph using Matlab	Spring 18, Fall 14, Fall 13
- Computer Organization & Design	Fall 17, Fall 15
- Computer Science I (Java)	Spring 16, Fall 16
- Computer Science II (Java)	Spring 18

- Cloud & Web Programming — Spring 15
- Theory of Computation — Fall 14
- Software Systems Development — Fall 13

Service Contributions

At Ahmedabad University:

- Admissions Outreach Committee for BS in Computer Science Programme — Monsoon 21 - Winter 23
- Major Advisor for BS in Computer Science Programme — Summer 22 - Monsoon 23

At LSU Shreveport:

- Served in curriculum committees for Cybersecurity & Networking and Digital & Interactive Design, LSU Shreveport — Spring 2020
- Served as an Academic Advisor for undergraduates in Computer Science — Spring & Summer 2020
- Performed internal course assessments for ABET Accreditation — Spring 2020

Honors and Awards

Best Poster nominee at Supercomputing Conference — November 2016
Student travel award at IEEE BigData — December 2016
Student travel award at IEEE IPDPS — May 2018
LSU Graduate School Dean's Travel Award — Fall 2018