Buddhi Ashan

Mallika Kankanamalage

Doctoral Candidate

Department of Computer Science,
University of Texas at San Antonio

buddhiashan.mallikakankanamalage@utsa.edu
https://buddhi1.github.io/bashan/

I am a Computer Science Ph.D. candidate at the University of Texas, San Antonio, specializing in geometric intersection and approximate nearest neighbor similarity search within expansive geospatial polygonal datasets. Proficient in parallel and distributed computing, high-performance computing, GPU programming, and spatiotemporal data processing, my research focuses on exploiting parallel computing in heterogeneous and distributed platforms to enhance the performance and scalability of polygonal operations. My expertise lies in architecting efficient data structures and algorithms for multi-core and many-core systems, contributing nuanced insights at the confluence of computer science and geospatial data, addressing intricacies in geometric computations on large datasets.

Education

Doctor of Philosophy (Ph.D.) in Computer Science | Fall 2019 – Summer 2024 (Expected)
University of Texas at San Antonio
Dissertation: Geometric intersection and approximate nearest neighbor similarity search over large geospatial polygonal datasets.

Master of Science (M.S.) in Computing and Information Science | Fall 2017 - Spring 2019
Sam Houston State University (GPA 4.0/4.0)
Project: Performance evaluation of transfer learning for pornographic detection.

Bachelor of Science (B.Sc.) (Special) in Computer Science | 2011 November - 2016 May
University of Kelaniya, Sri Lanka (First class honours. GPA 3.77/4.0)
Dissertation: Recognition of vehicle license plates using MATLAB.

Professional Experience

- **Graduate Teaching / Research Assistant |** Fall 2019 - Onwards
  Department of Computer Science, The University of Texas at San Antonio
- **Graduate Assistant |** Fall 2017 – Spring 2019
  Department of Computer Science, Sam Houston State University
- **Temporary Lecturer |** 2017 March – 2017 August
  Department of Software Engineering, University of Kelaniya, Sri Lanka
- **Temporary Demonstrator |** 2016 February – 2017 February
  Department of Statistics and Computer Science, University of Kelaniya, Sri Lanka

Research Interests

- Parallel and distributed computing
- High performance computing
- GPU programming
- Spatiotemporal data processing

Research Projects

- Applications and data visualization researcher: ScooterLab (NSF # 2234516)
- Researcher: Approximate nearest neighbor similarity search for large polygonal and trajectory datasets (NSF # 2344585)

Skills

- Parallel and distributed programming: C, C++, CUDA, OpenMP, OpenACC, MPI
- Programming: Python, Java, VB.NET, HTML, PHP, CSS, MySQL, Oracle, Laravel, Knockout, Angular

Awards and Honors

- Best paper finalist: CCGrid 2023.
- NSF student travel grant: Annual MVAPICH user group (MUG) 2022 conference.
- Member of the Team Northern Lights-UTSA selected for final 3 teams at the Innovation bowl competition organized by Radiance technologies, 2023.

Publications

- Ashan, M. K. Buddhi, Satish Puri, and Sushil K. Prasad. "Efficient PRAM and Practical GPU Algorithms for Large Polygon Clipping with Degenerate Cases." *2023 IEEE/ACM 23rd International Symposium on Cluster, Cloud and Internet Computing (CCGrid)*. IEEE, 2023 (**Acceptance rate 21%. Best paper finalist**).
- Ashan, M. K. Buddhi, Hyuk Cho, and Qingzhong Liu. "Performance evaluation of transfer learning for pornographic detection." *Advances in Natural Computation, Fuzzy Systems and Knowledge Discovery: Volume 2*. Springer International Publishing, 2020.
- Ashan, M. K. Buddhi, and N. G. J. Dias. "Recognition of Vehicle License Plates using MATLAB." *European International Journal of Science and Technology* 5.6, 2016.

Poster Presentations

- IPDPS 2022 PhD forum.
- Annual MVAPICH user group (MUG) 2022 conference.
- 30 to R1 research poster showcase organized by the UTSA graduate school, 2023.

Teaching Experience

- Graduate teaching assistant: CS4823/CS6643 Parallel programming/processing | Fall 2021 (UTSA)
- Graduate assistant: COSC 1436: Introduction to programming and algorithms | Fall 2018, Spring 2019 (SHSU)

Contributions

- Webmaster: EduHiPC 2023: Workshop on Education for High Performance Computing
- Webmaster: EduHPC 2023: Workshop on Education for High-Performance Computing

Personal

- Sri lankan citizen, married

References

- Dr. Sushil K. Prasad, Advisor, University of Texas at San Antonio | sushil.prasad@utsa.edu
- Dr. Satish Puri, Co-advisor, Missouri University of Science and Technology | satish.puri@mst.edu