BIO-DATA

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3. Institution: Indian Institute of Technology Ropar
4. Date of Birth: 28th December, 1995
5. Gender (M/F/T): M
6. Category Gen/SC/ST/OBC: GEN
7. Whether differently abled (Yes/No): No
8. Academic Qualification (Undergraduate Onwards)

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| --- | --- | --- | --- | --- | --- |
| S.No | Degree | Year | Subject | University/Institution | % of marks |
| 1. | B. Tech. | 2018 | CSE | Maulana Abul Kalam Azad University of Technology | 74.5 |
| 2. | M. Tech. | 2021 | CSE | Indian Institute of Technology Ropar | 83.9 |

1. Ph.D thesis title, Guide’s Name, Institute/Organization/University, Year of Award.

**Title:** Constrained Path Optimization Problem on Time-dependent Road Networks.

**Guide**: Dr. Venkata M. V. Gunturi, Dr. Venkata Kalyan Tavva

**Institute**: Indian Institute of Technology Ropar

1. Conferences.

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| --- | --- | --- | --- | --- | --- |
| S.No | Title | Author’s Name | Venue | Publisher | Year of Publication |
| 1. | Streamlining vehicle logistics: Maximizing pickup and delivery while considering loading and unloading costs. | Kousik Kumar Dutta and Venkata M. V. Gunturi | International Conference on Advances in Geographic Information Systems (SIGSPATIAL) | ACM | 2025 |
| 2. | Constrain path optimization on time-dependent road networks. | Kousik Kumar Dutta and Venkata M. V. Gunturi | **International Web Information Systems Engineering conference (**WISE) | Springer | 2024 |
| 3. | CAMOUFLAGE: An Efficient Mechanism to Hide Congestion in NVM LLC | Prathamesh N Thanksale, Kousik Kumar Dutta, Shirshendu Das, and T. V. Kalyan | International Conference on High Performance Computing, Data, and Analytics (HiPC) | Elsevier | 2023 |
| 4. | A multi-threading algorithm for constrained path optimization problem on road networks. | Kousik Kumar Dutta, Ankita Dewan and Venkata M. V. Gunturi | **International Web Information Systems Engineering conference (**WISE) | Springer | 2022 |
| 5. | A fairness conscious cache replacement policy for last level cache. | Kousik Kumar Dutta, Prathamesh Nitin Tanksale and Shirshendu Das | Design Automation and Test in Europe (DATE) | IEEE | 2021 |
| 6. | NEAT activity detection using smartwatch at low sampling frequency. | Ankita Dewan, Venkata M. V. Gunturi, Vinayak Naik and Kousik Kumar Dutta | SmartWorld/SCALCOM/UIC/ATC/IOP/SCI | IEEE | 2021 |

1. Professional Recognition/ Award/ Prize/ Certificate, Fellowship received by the applicant.

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| --- | --- | --- | --- |
| S.No | Name of Award | Awarding Agency | Year |
| 1. | GATE Fellowship | MHRD | 2019 |

1. Manuscripts Under Review.

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| --- | --- | --- | --- | --- |
| S.No | Title | Author’s Name | Venue | Publisher |
| 1. | A scalable approach for time-dependent constrained path optimization on road networks. | Kousik Kumar Dutta and Venkata M. V. Gunturi | ACM Transactions on Spatial Algorithms and Systems | ACM |
| 2. | Interval based constrained path optimization in time-dependent road networks | Kousik Kumar Dutta and Venkata M. V. Gunturi | **International Web Information Systems Engineering conference (**WISE) | Springer |

1. Research Interests.

* Spatio-temporal databases; Navigation systems; Graph data structures and libraries; Parallel and distributed algorithm design; Time-dependent road networks; Efficient path planning under constraints; Integration of cutting-edge technologies in navigation and spatial computing.

1. Current Projects.

* GPU to design scalable navigation system.
  + - * + Summary. Real-world road networks are massive, making it challenging to fit them into the limited memory of GPUs. Therefore, our goal is to develop a scalable navigation system that efficiently leverages GPU resources while addressing these challenges.

Exploring efficiency of Bi-directional search for navigation.

Summary. Bi-directional search offers significant scope for parallelism in processing traditional navigation queries. Therefore, we are exploring its potential for advanced navigation queries.

1. Academic Services.

* Reviewer in Journal: Geoinformatica
* Teaching Assistant: IIT Ropar, courses: Database Management System, Software Engineering, PG Software Lab, Development Engineering Project

1. Technical Skills.

* Programming Languages: JAVA, C, C++, Python, SQL, LaTeX, Shell script.
* IDE and Frameworks: Eclipse, VS Code, ChampSim