Shubham Kaushik

Software Engineer | Systems Researcher

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EDUCATION

Jan 2024 - Present	**Doctor of Philosophy (Ph.D.)** Brandeis University, MA, United States Major: **Computer Science**
Sep 2022 - Dec 2023	**Masters of Science (M.S.)** Boston University, MA, United States Major: **Computer Science** with specialization in *"Data-Centric Computing"* GPA: *3.88/4.0*
Jul 2014 - Jun 2018	**Bachelor of Technology (B.Tech.)** Maharshi Dayanand University, Haryana, India Major: **Computer Science** & **Engineering** Thesis: *"Fault Modelling of an Object-Oriented System using Colored Petri Nets"*

TECHNICAL SKILLS

- **Programming Languages**: C, C++, Python, SQL, Rust (*learning*)
- **Markup Languages**: HTML, CSS, JSON, YAML, LaTeX, Markdown
- **Databases**: RocksDB, Postgres, MongoDB, Redis, SQLite, ORM
- **Tools & Systems**: Kafka, Hadoop, gRPC, Microservices, Asyncio, Git, ETL, Flink, AWS

PROFESSIONAL EXPERIENCE

Jan 2024 - Present	**Ph.D. Researcher** Brandeis University, MA, United States
Mar 2022 - Aug 2022	**Software Engineer**, *Server Programming Team* Kwalee, India
Jun 2021 - Mar 2022	**Engineer - Information Security**, *Cyber Fusion, Information Security* FIS Global, India
Jul 2018 - Jun 2021	**Project Engineer**, *Big Data, Cyber Defense	Python Cloud Computing, Wipro Digital* Wipro Limited, India

PROJECTS

- **Range Query-Aware Log-Structured Merge (LSM) Trees** (*Ongoing*): Developing data reorganization strategies and layouts to optimize the performance of range queries in LSM-based storage systems. [readme]
- **Multi Layered Detection Model (MLED) for Error Detection** (*Ongoing*): Creating a flexible system to reduce undetected errors in petabyte-scale file transfers through layered error-checking methods. [readme]
- **Benchmarking LSM-Based Storage Engines**: Analyzed performance of LSM trees with different memory buffers across various types of workloads, offering guidelines for optimal buffer selection. [publication]
- **Heterogeneity-Aware Operator Placement for Streaming Systems**: Proposed a dynamic method to place data processing operators based on data selectivity, improving efficiency and reducing network traffic. [readme]
- **Finding Vulnerabilities in VS Code Extensions**: Created a simulation framework to automate the installation and execution of VS Code extensions, identifying security vulnerabilities by analyzing open ports. [readme]

CERTIFICATIONS

Jul 2023	*"The Ultimate Hands-On **Hadoop**: Tame your **Big Data!**"* - Udemy [link]
Jul 2023	*"Beginning **C++** programming from Beginner to Beyond"* - Udemy [link]
Oct 2018	Statement of accomplishment for *"**Python** Track"* - DataCamp [link]

CURRICULAR ACTIVITIES

Sep 2023	Judged and mentored at *HackMIT 2023*, aiding teams with technical challenges.
Nov 2022	Mentored 4 teams, with an average of 20 participants at *BostonHacks*.
Jan 2017	Volunteered in the Program Event Management team at the *National Youth Festival*.