

KUMAR PRASUN

Software Developer

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EDUCATION

New York University - Courant , New York City, USA	Sept 2021-May 2023
Master of Science, Computer Science	
Relevant Coursework: Operating Systems, GPU Programming, Artificial Intelligence	
Birla Institute of Technology and Science - Pilani , Hyderabad, India	Aug 2016-May 2020
Bachelor of Engineering in Computer Science	
Birla Institute of Technology and Science - Pilani , Hyderabad, India	Aug 2015-May 2020
Master of Science, Mathematics	

EXPERIENCE

New York University	May 2022-Aug 2022
Graduate Research Assistant	
<ul style="list-style-type: none">Conducted in-depth research on communication and memory overheads of various application types running on GPUs.Proposed and developed highly accurate GPU simulator models to enable AI-assisted performance optimization of these overheads, resulting in a significant reduction in GPU processing times.	

BITS Pilani Hyderabad	June 2020-June 2021
Junior Software Developer	
<ul style="list-style-type: none">In collaboration with Nvidia, developed high-performance CUDA and MPI enabled accelerated mesh-free solvers for computational aerodynamic simulations.Devised memory & compute optimizations to be able to quickly process massive grids in the order of several millions of points spread over multiple distributed GPU systems.Profiled and analyzed performance statistics of multiple solvers written in CUDA, Fortran, Julia & Python, leading to more than 130x speedup on average of the different solvers versus their CPU counterparts.Developed a source-to-source compiler capable of generating tangent-differentiated code for large scale projects with thousands of lines of code in under 1 second.	

Google Summer of Code (with OpenAstronomy)	May 2017-August 2017
Open Source Developer	
<ul style="list-style-type: none">Developed and verified 16 new astronomical procedures for AstroLib.jl, an open-source Julia.Discovered and patched multiple bugs in the astronomical routines of NASA's IDL Astronomy User's Library.Implemented missing documentation and test sets in required procedures of AstroLib.jl, to reach 100% code coverage.Increased type stability & improved performance time of the AstroLib.jl library.	

PROJECTS

eCommerce Website	August 2022-November 2022
<ul style="list-style-type: none">Developed the back end for customers information of an eCommerce web site as a collection of RESTful service.Setup an automated CI/CD pipeline that deployed the service to a Kubernetes Cluster on the IBM Cloud automatically.Implemented Flask-RESTX to build REST APIs and generated swagger documentation for the service.	

BattleCode AI Bot	January 2023-February 2023
<ul style="list-style-type: none">Developed a Java bot for MIT's AI programming competition that secured us the 4th place in the finals.Implemented continuous integration and developed codegen scripts to automatically create and update more than 5000 lines of Java code.	

Personal Portfolio: <https://testsubjector.github.io/portfolio>

PUBLICATIONS

An Implicitly Parallel Meshfree Solver in Regent
2020 IEEE/ACM 3rd Annual Parallel Applications Workshop: Alternatives To MPI+X (PAW-ATM)
Optimized and benchmarked performance of Regent parallel CFD solvers with explicitly parallel versions written in Fortran 90 and Julia.

SKILLS

Programming Languages: Python, C++, Julia, Java, CUDA
Technical Skills: Git, Linux, Bash scripting, Godot, Unity, IBM Cloud, Docker, PETSc, Kubernetes
Experience with: DevOps and Agile, Parallel Programming (CUDA/MPI), Artificial Intelligence, Open-Source Development, Operating Systems

ACHIEVEMENTS

2022 & 2023 Finalist for MIT's BattleCode AI competition.
Awarded Junior Research Fellowship by the Govt. of India