ANKIT SRIVASTAVA

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EDUCATION

Georgia Institute of Technology

Doctor of Philosophy in Computational Science & Engineering   December 2021
Overall GPA: 3.92/4.00

Master of Science in Computational Science & Engineering   May 2017
Overall GPA: 3.90/4.00

Indian Institute of Technology, Kanpur   May 2011
Bachelor of Technology in Civil Engineering
Overall GPA: 8.0/10.0

PROFESSIONAL EXPERIENCE

Microsoft - Office 365 Security & Compliance Research

Data Scientist   October 2021 - Present
· Working on tackling problems in compliance space using machine learning and artificial intelligence.

Data Scientist Intern   May 2020 - July 2020
· Developed a software for automatic end-to-end construction of multi-level topic taxonomy from a given set of documents which can be used for cataloging the set of documents in an unsupervised manner.
· Demonstrated the utility of the software using data sets which simulated different customer scenarios.

Data Scientist Intern   May 2019 - August 2019
· Experimented with multiple deep neural network architectures for natural language processing in order to determine their efficacy for classifying documents using very few training samples.
· Concluded that BERT outperforms other architectures in multiple regulatory compliance settings.

Synopsys, Inc. - Verification Group   May 2018 - August 2018
Intern (Technical-Engineering) - Research & Development
· Worked on the development and performance optimization of FPGA partitioning algorithms, which are used by a tool called HAPS ProtoCompiler, for facilitating fast FPGA prototyping.
· Demonstrated an average slack improvement of 2 to 3 times over the baseline across multiple designs.

Lawrence Livermore National Laboratory - CASC   May 2017 - August 2017
Computation Intern, Mentors: Dr. Abhinav Bhatele & Dr. Nikhil Jain
· Worked on the development of a parallel discrete-event based network simulation tool called TraceR.
· Studied the effect of multiple job-scheduling policies on the performance of different interconnection networks by enabling the existing code of TraceR, written in C++, to simulate dynamic job scheduling.
· Demonstrated that the scheduling policy choice significantly impacts the throughput of supercomputers.

ANSYS Fluent India Pvt. Ltd.   July 2011 - July 2014
Technology Specialist - Software Development
· Worked as part of the Parallel/High Performance Computing team of the FLUENT software and the Solver Integration team of a novel CFD solver part of the newly developed AIM software.
· Collaborated on the development and maintenance of the parallel architecture of the AIM CFD solver.
· Contributed to a variety of areas during the development process of the new CFD solver since the early stages of its development, developing primarily in C++ and Python.
· **Development of parallel file I/O for multiple CFD solvers.**
  · Designed and implemented the bulk of a parallel file I/O system, using MPI & HDF5, for the persistence of mesh, settings, and other heavyweight data by the AIM CFD solver.
  · Integrated the newly developed parallel file I/O system with the flagship CFD solver called FLUENT; significant improvement in performance was noted over legacy file I/O system for FLUENT solver.
  · Exposed the newly developed file I/O system in the FLUENT software as an addon module.

- **Import of settings written by the CFX solver into the new CFD solver.**
  - Imported CFX's I/O and expression libraries into the new solver by writing a wrapper around them in C++ and using them for reading settings from the files written by the CFX solver.
  - Created a framework in Python for translating the settings read from the CFX format files, mapped solver settings, and user defined expressions into the new software.
- Assisted in the development of a spreadsheet-based tool which was used by more than 30 team members for cross-team collaboration on the development of the new software.
- Scored 4+ points, out of a maximum of 5, in all of the company's annual performance reviews.

RESEARCH & PUBLICATIONS

Georgia Institute of Technology - CSE September 2014 - August 2021
Graduate Research Assistant, Advisor: Dr. Srinivas Aluru
- Defended my doctoral dissertation on developing novel scalable parallel algorithms for learning the structure of Bayesian networks with a large number of variables from big datasets.
  - **A Srivastava**. "Parallel Algorithms and Generalized Frameworks for Learning Large-Scale Bayesian Networks." Georgia Institute of Technology, 2021.
- Coauthored multiple research papers which were accepted in reputable conferences and journals.
  - **A Srivastava**, S Chockalingam, M Aluru, S Aluru. "Parallel Construction of Module Networks." *Accepted to appear* in Supercomputing (SC 2021).
  - **A Srivastava**, S Chockalingam, S Aluru. "A Parallel Framework for Constraint-Based Bayesian Network Learning via Markov Blanket Discovery." In Supercomputing (SC 2020).
  - I Roy, **A Srivastava**, M Grimm, M Nourian, M Becchi, S Aluru. "Evaluating High Performance Pattern Matching using the Automata Processor." In Transactions on Computers (TC 2019).
  - I Roy, **A Srivastava**, M Grimm, S Aluru. "Interval Stabbing on the Automata Processor" In Journal of Parallel & Distributed Computing (JPDC 2018).

TEACHING EXPERIENCE

Teaching Assistant, CSE Algorithms August 2018 - December 2018
Instructor: Dr. Ümit Çatalyürek, School of Computational Science & Engineering
- Assisted with the teaching of the course which focused on teaching algorithm design, complexity analysis, experimentation, and optimization, for important science and engineering applications.
- Graded homeworks, programming assignments, and exams and held office hours for helping the students understand the design and analysis of algorithms for a variety of problems.

Teaching Assistant, High Performance Parallel Computing August 2017 - December 2017
Instructor: Dr. Tobin Isaac, School of Computational Science & Engineering
- Assisted with the teaching of the course which focused on teaching the design, implementation, and analysis of high-performance code written using OpenMP, MPI, and CUDA.
- Graded the correctness of the programming assignments and projects and held office hours for helping the students debug the performance of their implementations.

ACADEMIC PROJECTS

Properties and Variations of the RP-model September 2017 - December 2017
Advisor: Dr. Constantine Dovrolis, School of Computer Science, Georgia Tech
- Verified a network generation model proposed in a journal paper, called the RP-model, by implementing it in Python using only the details in the published paper.
- Determined critical properties of the RP-model and proposed a modified version of the model to the authors of the original paper, using the insights gained from the implementation.

Genome Assembly and Analysis of a novel Salmonella strain January 2017 - April 2017
Advisor: Dr. I. King Jordan, School of Biological Sciences, Georgia Tech

· Collaborated on the whole-genome assembly of a Salmonella isolate, using the Illumina reads provided by the CDC, and creating a genome browser for exploring the properties of the assembled genome.
· Worked closely with two different teams which were primarily made up of people with expertise in life sciences and provided them with support on the computational front.

Modeling of Water Quality in River Ganga July 2010 - April 2011
Advisor: Dr. Saumyen Guha, Department of Civil Engineering, IIT Kanpur

· Comparatively analyzed two numerical models for water quality modeling in river Ganga, QUAL2K and HEC-RAS, using a test problem and successfully identified QUAL2K as the more suitable model.
· Successfully validated the model by simulating representative water quality parameters in an 835 km reach of the river and comparing the monitored values with the values predicted by the model.
· **Awarded Proficiency Medal for the best B. Tech. project work in Civil Engineering, 2011.**

RELEVANT COURSES

Georgia Institute of Technology	August 2014 - Present
High Performance Computing	Advanced Computer Architecture
Computational Data Analysis (Machine Learning)	Deep Learning
Computability & Algorithms	Network Science
Algorithms for Bioinformatics & Computational Biology	Modeling & Simulation

Indian Institute of Technology, Kanpur		July 2007 - May 2011
Fundamentals of Mathematics	Mathematical Methods	
Fundamentals of Computing	Programming Tools & Techniques	

SCHOLASTIC ACHIEVEMENTS

· Awarded KN Saluja scholarship from July 2007 to April 2008 for academic excellence by the Department of Civil Engineering, Indian Institute of Technology, Kanpur.
· Secured 1316th rank among more than 250,000 examinees in IIT Joint Entrance Examination, 2007.
· Awarded Certificate of Merit by the Department of Science & Technology, State Government of Uttar Pradesh for securing highest marks in Mathematics in Grade - 12 examination, 2007.
· Secured overall 1st rank in the district in Grade - 10 examination, 2005.

TECHNICAL STRENGTHS

Computer Languages	C, C++, Python, R, Scheme
Protocols & Libraries	PyTorch, MPI, OpenMP, CUDA, Boost, Swig, HDF5
Tools	Intel Parallel Studio, hpctoolkit, gdb, valgrind, Git, LaTeX