SAMARTH KULSHRESHTHA

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EDUCATION

- **Master of Science, University of Illinois Urbana-Champaign (UIUC)**
  Computer Science, Class of 2019 GPA: **4.0 / 4.0**
- **Bachelor of Technology, Manipal Institute of Technology, Manipal**
  Computer Science and Engineering, Class of 2016 CGPA**: 9.77 / 10.00**
  Rank: **1** out of 212 (Gold Medalist)

COMPUTER SKILLS

- C# (advanced), C/C++ (intermediate), Java (intermediate), Python (beginner)
- Microsoft Azure
- ASP .NET (intermediate), ADO .NET (intermediate)
- Powershell (intermediate), Bash (beginner)

EXPERIENCE

- **Graduate Research Assistant – Parallel Programming Laboratory, UIUC** **Aug. 17 – Present**
  - Working under Prof. Laxmikant Kale to provide support for Sections in charmpy (a python implementation of the Charm++ parallel programming framework)
- **Software Engineer – Microsoft India Development Center, Bangalore** **Jun. 16 – Jul. 17**
  - Designed and developed the Data Discovery and Insights service, a new service based on the Hybrid Data Services framework to search and retrieve files stored across Azure StorSimple backups
  - Responsibilities included designing the schema for storing file metadata across tables, minimizing cost both in terms of storage and transactions, achieving maximum parallelization, and abstracting various modules to support a change of the underlying database implementation
  - Designed, implemented and automated the infrastructure to test the Hybrid Data Services architecture
  - Integrated a well-known shipping carrier's APIs with a new cloud service - challenges involved automating testing since it would take a lot of time to ship items in the real world
- **Software Engineering Intern – Microsoft India Development Center, Bangalore** **Jan. 16 – May 16**
  - Implemented the core business logic for Data Transformation Service which leverages Azure Batch for scalability and parallelization
  - Developed unit tests as well as integration tests for the entire service architecture
- **Software Engineering Intern – Microsoft India Development Center, Bangalore** **May 15 – Jul. 15**
  - Integrated Azure Site Recovery with Azure StorSimple to facilitate a one-click unified failover through Azure Automation
  - Conducted performance analysis to identify bottlenecks involved in the import of StorSimple data to Azure blobs, implemented this import using PowerShell scripts in Azure Automation
- **Summer Intern – Indian Institute of Technology (IIT) Bombay** **May 14 – Jul. 14**
  - Implemented waveplots in Python to replace Ngspice plots for eSim - an open source EDA tool
  - Developed real-time plots in python for Sandhi - a free and open-source visual programming language and editor
  - Enhanced the GUI of Sandhi by upgrading it from Tkinter to PyQt

PROJECTS

- **Distributed Graph Processing Engine:** Built a distributed graph processing engine following a design similar to Pregel based on the Gather-Apply-Scatter model. Implemented in a modular way to allow writing graph algorithms like PageRank, ShortestPath etc. The input and output of the graph operation are stored on a simple distributed file system. Master and StandbyMaster are responsible for coordinating the intermediate steps between the Workers. The system can tolerate up to two failures including a Master/StandbyMaster failure.
- **Asynchronous and Fault Tolerant Multi Party Computation:** Working with Prof. Andrew Miller on being able to perform asynchronous multi party computation in the presence of failures. The goal is to integrate this with the Hyperledger Blockchain Fabric.

OTHER EXPERIENCE

- **Founder – Free and Open Source Software for Engineering Education, Manipal** **Sept. 14 – May 16**
  - Founded the group in collaboration with IIT Bombay to work on open source tools like Sandhi, eSim, and Scilab
  - Responsibilities included hiring members, managing the team and providing status updates to IIT Bombay
  - Recruited ten students and delivered enhancements to Sandhi, eSim, and Scilab
  - Conducted bi-weekly programming sessions to help members enhance their software skills
  - Set up a collaboration with Italian Mars Society to provide better quality projects for members to work on
- **Member – Parikshit Student Satellite Team, Manipal** **Oct. 13 – May. 14**
  - Developed a compression module to compress the images captured by the thermal camera on board the nanosatellite using embedded C for the On-Board Data Handling Subsystem
  - The compression module had to be implemented under sever memory usage constraints due to limitations on system memory

AWARDS

- **GE Foundation Scholar Leaders Program Scholarship**
  - Received scholarship (worth USD 2250/year) for two years in recognition of excellent academic achievement and future potential in May 2014. Only student in the Computer Science and Engineering department to receive this scholarship.
- **Gold Medal and Award of Excellence**
  - For securing the first position in the Computer Science and Engineering Class of 2016
- First position in Elucidate (an event which involved solving questions related to Cryptography)
- Runner up in Paranthesize (an ACM style programming event)
- Runner up in ‘Code Knockout’ (a knockout based programming competition)