Sudheesh Singanamalla

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Education

- **National Institute of Technology, Warangal** — Warangal, India
  Bachelor of Technology in Computer Science; GPA: 8.10/10 (Top 10/120 students) — *Jun. 2012 – May. 2016*

  Undergraduate Project Advised by: Dr. K. Ramesh. *Dept. of Computer Science and Engineering*
  IEEE - EPICS Project Advised by: Prof. L. Anjaneyulu. *Dept. of Electronics & Communication Engineering*

- **Indian School of Business, Hyderabad** — Hyderabad, India
  Certificate in Technology, Entrepreneurship and Product Design; — *May. 2014 – May. 2016*

Publications

1. PocketATM: Understanding and Improving ATM Accessibility in India.
   ***Sudheesh Singanamalla**, Venkatesh Potluri, Colin Scott and Indrani Medhi-Thies. 2019. In the proceedings of the 10th International Conference on Information and Communication Technologies and Development (ICTD '19). Ahmedabad, India. 10 pages.*

2. Avatar: Enabling Immersive Collaboration via Live Mobile Video.
   ***Sudheesh Singanamalla**, William Thies, and Colin Scott. 2018. In 3rd International Workshop on Multimedia Alternate Realities (AltMM18) at ACM Multimedia'18 (MM'18) October 22, 2018, Seoul, Republic of Korea. 6 pages.*

3. Vishrambh: Trusted Philanthropy with End-to-End Transparency.
   *Apurv Mehra, Ankush Jain, **Sudheesh Singanamalla**, Satya Lokam, Muthian Sivathanu, Jacki O'Neill. 2018. In the 1st International Workshop on HCI for Blockchain at ACM CHI 2018, Montreal, QC, Canada. 4 pages.*

Research Experience

- **Microsoft Research** — Bangalore, India
  Research Fellow (Advised by: Dr. Bill Thies & Dr. Muthian Sivathanu) — *Jan 2017 - Present*

  - 🏆 **Vishrambh - Societal Scale Blockchain Architecture for Philanthropies**: The project aims to leverage the properties of blockchain technology combined with IndiaStack to build a corruption free and end to end completely auditable philanthropic platform. As a part of the project I have been responsible for building and testing the novel architectures & consensus protocols for the underlying system in addition to the implementation of the proof of concept for the philanthropic use case.

    Awards: Winner of the Microsoft Blockchain challenge and four IndiaStack challenge awards from Microsoft India Leadership Team.
  - **TeleChain - Blockchain for Commericial Communication & Telecom Regulations**: The low tariffs and direct reach to millions of mobile telecom subscribers across India has made SMS and direct calling one of the most effective ways to sell services. However, this has brought with it a serious invasion of privacy and unsolicited commercial communication (UCC). In collaboration with Telecom Regulatory Authority of India (TRAI), the telechain project focuses on using blockchain to curb the growing menace of UCC.

    Impact: The project is intended to go live across the country starting December 2018 to simplify the woes of UCC and has resulted in a revised telecom regulation for commercial communication in India.
  - **Avatar Project - Exploring Productive Employments via Live Video Collaborations**: With increasing 4G and smartphone penetration in countries like India, the research aims to explore feasibility of productive employment opportunities for low income workers as a part of mobile crowd sourcing with real time mobile video. Additionally, the research focuses on ethical challenges that arise due to asymmetric power relationship among the parties involved during a video stream.
  - **PocketATM - Understanding & Improving ATM Accessibility**: Financial services and ATM transactions are largely inaccessible to people with vision impairments. Motivated by accessibility barriers posed by ATMs for visually impaired users, PocketATM is a system which is proposed as a feasible solution to improve ATM accessibility and usability among both visually impaired users and sighted users.
  - **Distributed Mobile Open Playgrounds**: The game mechanics of most digital games are fixed by the developers and designers of that game. This research project aims to build open playgrounds that can be used by players to design and create their own experiences. In this work, we build a P2P digital card game system along with a collaborative marketplace and tools to edit the gameplay to make it more engaging and interesting.

Work Experience

- **Microsoft India R&D Private Limited** — Hyderabad, India
  Software Engineer (Reported to: Veerendra Kumar Balla & Sastry Sriramula) — *Jun 2016 - Dec 2016*
  - 🏆 **1 Engineering Systems - Application Insights & Telemetry**: As a part of the 1ES group working on a shared common telemetry platform inside Microsoft, I was responsible for building the layers of authentication for securing the data using Azure Active Directory and for creating developer tools for easily ingesting terabytes of data to the cold storage clusters. I've also been responsible for building microservices that allow easy ingestion of large amounts of data from Microsofts' engineering infrastructure.

    *Awards: Received the **Star performer** award for building and shipping data collection procedures to make efficient fault detections in supply chain systems involving Kinect & Surface.*

- **Google - Summer of Code** — Worldwide
  Student Developer — *Summer 2016 and 2015*
  - **Loklak apps/microservices to the open tweet platform and IoT integrations.**: During the summer of 2016, As a continuing member of the Loklak project, I've been responsible for integrating more data stream sources added to Twitter into the servers. I implemented the interfaces for additional data streams from IOT devices to stream into a local cluster and connect a home automation system controlled by Twitter. This project separated into Susi.AI and Loklak for keeping rule based AI and data collections mechanisms separate.
  - **Timeline and search navigation for loklak.net**: As one of the founding members of the Loklak project under the FOSSASIA umbrella, I was responsible for building search and navigation systems using the data collected via the P2P crawlers along with enhancing crawlers and their open source adoption.

- **Microsoft India R&D Private Limited** — Hyderabad, India
  Software Engineering Intern (Reported to: Jaydeep Baliram Sawant) — *May 2015-Aug 2015*
  - **Corporate Functions - Patent search and mining**: As a part of the corporate functions group, I was responsible for development of web API services and data collection services that help the legal teams within Microsoft to quickly search for patents and find related art work.
  - **Tutoring systems for Visual Studio**: As an intern, I implemented a proof of concept for the patent US20170039041A1 that integrates and implements a remote tutor experience from Video and Audio streams directly into the Visual Studio IDE. The tutors code and IDE states are played back to the students learning from platforms like Code9, Lynda or Microsoft Learning.

- **Redhat India** — Bangalore, India
  Software Engineering Intern (Reported to: Soumya Deb) — *Dec 2014 - May 2015*
  - **Bugzilla bug tracker and management**: During my internship at Redhat, I was responsible for building the RPC layers within Bugzilla, the bug tracker within Redhat and build tools to generate dashboards for the management teams to understand their developer performance, categorize and prioritize the features that are pending in the engineering backlog.

Other Projects

- **Game Automators - Making learning fun**: The project integrates UI Automation tools combined with machine learning and computer vision techniques to automate and solve android mobile games. The project published an open book and has more than 30 contributors who have automated more than 20 games including breaking world high scores in Piano Tiles, Flappy Bird and Subway Surfers. *Work done while at National Institute of Technology Warangal.*
- **Carro - Logistics Scheduling & Routing with Real Time Route Optimization**: Mid mile logistics are a major unorganized sector in India and a major lifeline to the country after the railways. The project builds a tool for implementing logistics pooling to reduce the number of transportation resources used by a trucking agency and reduce the carbon footprint by pooling. *Undergraduate Project at National Institute of Technology Warangal.*
- 🏆 **Government Enhanced Administrative Resource (GEAR Systems)**: Aimed at making the complaint tracking and resolution process easier for the citizens and the government, GEAR systems introduced text and twitter based automated complaint tracking systems. The platform leverages the information under the Right to Information (RTI) Act and provides a public tracking for the complaint along with escalating issues to the right officials in the government. *Work done while at National Institute of Technology Warangal.*

  Awards: GEAR Systems has been awarded the best implementation award under IEEE-EPICS (Engineering Projects In Community Service) and has received other awards for its implementation from Deshpande foundation & Sandbox startups.

- 🏆 **SmartGas - IoT Systems for Vendors**: This IoT based solution aims at automating the request for LPG cylinders. In India, the LPG cylinders need to be requested from a vendor agency. SmartGas provides vendors a CRM tool along with the status of the LPG cylinders before attempting a new delivery while providing the home users with interesting usage insights and data aggregated from online sources for preparing new recipes or booking an Uber when the gas runs low. *Work done while at National Institute of Technology Warangal.*

  Awards: The project won the runner up position at the Indian School of Business for its execution and design implementation.

Open Source Contributions & Other Projects

I am a passionate open source contributor and evangelize open contributions and collaborative work. I actively contribute, build and maintain various communities and projects. I've also contributed to various projects both scientific and engineering, like Astropy, Numpy, Pandas, Microsoft Open Source, The Linux Foundation, Hyperledger, Fedora Linux, Python Software Foundation & coala.

- **Hyperledger**: As a contributor to Hyperledger, I've implemented the publish and subscribe methods for the libraries with Python. Additionally, I have actively been contributing to making deployments easier over the Microsoft Azure cloud, performance testing and contributing to research discussions.
- **Mozilla**: During my contributons to Mozilla, I've contributed to various projects like the core firefox, its networking layers and to Firefox OS. With more than 100 bugs filed and 95 patches sent to its various codebases, I've been a major part of the Mozilla India's technical and evangelism task forces. During the Mozilla Summit 2013, I proposed an automated translation system using the current localization data for automating Firefox's translated releases.
- **FOSSASIA**: As a long standing member with the organization, I've been responsible to start and build projects like Loklak and Susi.AI while collaborating and mentoring more than 150 open source contributors. I currently hold an owner/committer status within the organization and look forward to mentoring new students.
- **Yacy & Loklak - Distributed P2P Crawlers**: The loklak architecture was heavily inspired by the architecture of the YaCy search server. Guided by my mentor *Michael Peter Christen*, I was responsible for building administrative interfaces and a new user interfaces along with IoT integrations.
- **Code For India**: As a contributor to Code for India, I collaborated with Akshaya Patra, an NGO which caters to the mid day meals of millions of school going children in the country to build tools that perform delivery route optimization for the food trucks. These tools greatly help the organization streamline their operations and incur lower operation costs thus allowing for more money to be directed to actions that impact them the most.

Invited Talks & Demos

- **Hyperledger Global Forum - 2018**: Invited by the Linux Foundation's for the Hyperledger Global Forum to speak about *Wrangling Hyperledger - Usability lessons learnt the hard way and steps ahead.*
- **Microsoft Global Demo Day - 2018**: Invited by Microsoft Garage and Global Delivery units at Microsoft to present *Vishrambh - A scalable blockchain solution for end to end tracing and audit.*
- **Microsoft Research TechFest - 2018**: Presented the demo of *Vishrambh* at TechFest 2018, the annual event from Microsoft Research.
- **Google Mentor Summit - 2017**: Presented a short talk on *The future of Loklak & Susi.ai and development plans.*
- **FOSSASIA - 2017**: Presented a talk on *Improving fault detection and real time analytics with telemetry.*
- **FOSSASIA - 2017**: Presented a talk on *Leveraging Loklak for analytics with twitter data and introduction to weak and rule driven AI with susi.ai*
- **FOSSASIA - 2016**: Presented a talk on *Loklak - Endless possibilities with social media.*
- **FOSSASIA - 2016**: Presented a talk on *Game Automators - Making learning fun with mobile games.*
- **Mozilla India - 2015**: Presented a workshop on *importance of open source and how one could get started with OSS.*
- **Google Developer Group, Kuwait - 2015**: What is the right visualization? Exploring the world of data driven documents.
- **Kuwait Institute of Scientific Research - 2014**: Using open source technologies to map and interact with geo spatial information interfacing ArcGIS systems & open data maps.
- **Mozilla Summit - 2013**: Presented a lightning talk on the future of localization releases of Firefox with machine learning from existing translation data.

Positions of Responsibility & Volunteering

- **Mentor - Google Code In & Google Summer of Code - 2017**: As a mentor for Google Code In, a contest for students between the ages of 13-17, I was responsible for guiding the students to make their first open source contributions. As a mentor for Google Summer of Code 2017, I mentored 19 students to build and enhance the loklak and Susi.AI projects.
- **Secretary - Student chapter - Association of Computing Machinery**: As the secretary for the student chapter of ACM, I was responsible for the development of a research culture and improving the research culture at National Institute of Technology, Warangal. Additionally, I organized workshops in different areas of computer science and competitive programming.
- **Lead - Web & Software Development Cell (WSDC)**: As the lead of the WSDC cell of the institute, I've been responsible for leading my team to build inhouse products like Stark - our university CMS platform & a secure MIS system that handles the student and faculty information along with the room allotment procedures.
- **Mozilla Reps**: As a representative for Mozilla in India, I was responsible for collaborating with and mentoring new contributors, finding out their expertise and help them get started to open source contributions. I was also responsible for interacting with community members from across the world and taking combined decisions with the community.

Skills

- **Technical**: Python, C++, C, Java, Ruby, Scala, Perl, Javascript, OCaml, PHP, C#, Go
- **Languages**: English, Hindi, Telugu, Arabic, French