

# Sunil Murthy

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## EDUCATION

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**University of Colorado Boulder**, Boulder, CO.

*Aug 2015-Present Masters*

in Computer Science

GPA: 4.0 of 4.0.

Coursework: Machine learning, Data mining, Operating Systems, Object oriented design & analysis, Design & analysis of Algorithms, Network systems, Software engineering.

**Bangalore Institute of Technology**, Bangalore, IN.

*Sept 2007-Jun 2011 Bachelors*

in Computer Science & Engineering

GPA: 3.67 of 4.00.

## RESEARCH INTEREST

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Machine learning, Data mining, Data Analytics, Software development, Image processing.

## SKILLS

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C#, .NET, TFS, NUnit, NMock 2.0, WPF, WCF, PRISM, COM, Direct3D, Python, Design Patterns, Clearcase, Linux, C, C++11, GDB, Valgrind, PDB, CLI/C++, MSSQL, MongoDB, Enterprise Architect, NodeJS, AngularJS, Java, Javascript, GIT, GTK+, QT, AutoTools, Perl, MATLAB, R, Apache Spark.

## WORK EXPERIENCE

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**Graduate Research Assistant**

University of Colorado, Boulder

*Dec 2015 - Present*

- Development of firmware for YPOD(Arduino Yun and chemical sensors) a low cost air quality monitoring system. Supervisor: Prof. Michael Hannigan
- Developing MongoDB backend using AWS for storing the data streamed by Arduino yun over the WiFi module.
- Collaboration and integration of YPOD data with OpenAQ, a real-time database that provides programmatic and historical access to air quality data.

**Graduate Teaching Assistant**

University of Colorado, Boulder

*Aug 2015 - Dec 2015*

- Taught Data structures in C++11 to undergraduates. Under supervision of Prof. Rick Osborne.

**Senior Software Engineer**

Siemens Healthcare, Bangalore

*Jan 2014 - Jul 2015*

- Design, development, Unit testing of software components related to medical imaging software - Syngo.Native(Siemens proprietary software platform for imaging)
- Design and development of display manager for DICOM image rendering using Direct 3D and WPF.
- Prototyping of data management module for Imaging software.

## Systems Engineer

Siemens Healthcare, Bangalore

*Jul 2011 - Jan 2014*

- Design, development, unit testing and bug fixing of medical Imaging software.
- Exploring and incorporating the new algorithms, strategies to meet the performance(Increase by 5%) and memory(reduced leak of 100 MB/hr) in the product.
- Knowledge management by documenting details of all software components.
- Coordinating and Integrating 3rd party software package into syngo.Interventional product.
- Providing timely trainings and hands on session to the team to keep up with the latest Microsoft technologies (WPF, WCF, PRISM).

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## PROJECTS

**Music recommender system [2016]** A personal music recommender system using user preference analysis. I used hybrid model approach which is a combination of collaborative and content based filtering. Apart from recommender system I also build a automatic genre classifier. I used Apache spark(map-reduce) for processing large data-set and Mlib(part of spark) for constructing a model.

**pyFFT [2016]** The python implementation of Fast Fourier transformations and Discrete Fourier transformations.

**YPOD [2016]** The YPOD is an embedded-systems platform developed at the University of Colorado at Boulder intended for mobile air quality and environmental monitoring. The configurable design accommodates a variety of sensors, making it a valuable tool for a multitude of applications.

**Betrayal in On-line Strategy Game Diplomacy [2015]** Detecting when the betrayal is going to happen in a on-line strategy game called Diplomacy. Our approach involves using the game state to capture the game contextual information for modelling a classifier.

**Distributed File Server [2015]** Client/server based application that allows client to store and retrieve files from multiple servers. Support for simultaneous multiple users, authentication and data encryption using AES.

**Web server [2015]** Implementation of HTTP web server in C++11. Supports handling of multiple clients, HTTP 1.0 and HTTP 1.1, persistent connection(pipe-lining). Brings up the web server based on the web configuration file.

**Key logger [2015]** This is a winter break free-time project. The idea is to track the user keystrokes. It's a client server based architecture. Where the client runs in the background without the knowledge of the user, started as a demon at kernel boot time. This client will listen to the keys and send the window name, user id and keystroke to the server.

**Screen Recorder [2014]** Screen recorder records all screen activity on your computer and create a video file using FFMPEG encoder. It is written in C#. It let's you save the video in the required format (MP4, AVI, MKV etc.).

**.NET Memory Profiler [2014]** A custom .NET memory profiler application. It automatically logs the memory consumption for the process/processes which has loaded the module(DLL) of interest in Syngo.Via application. This profiler helped in figuring out the memory leaks and Out of memory exception in the project.

**Simple OS [2013]** A simple Linux like operating system written in C and Assembly using GRUB boot loader.

**Voice over GPRS [2010]** Voice over GPRS is a Voice chat application for symbian mobile phones. It consisted of 3 subsystems Voice chat, Voice-mail and Virtual classroom.

## HONORS & AWARDS

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<b>University of Colorado, Boulder</b> Boulder, CO One time university fellowship from the Department of Computer Science.	<i>Aug 2015</i>
<b>Siemens Healthcare</b> Bangalore, IN Award for efforts in identifying the bottlenecks that lead to stability issues in the project.	<i>Jan 2014</i>
<b>Siemens Healthcare</b> Bangalore, IN Spot award for extraordinary efforts towards delivery of project	<i>Jan 2013</i>
<b>Bangalore Institute of technology</b> Bangalore, IN Received scholarship for 3 years from HoneyWell.	<i>Jan 2008</i>
<b>High school</b> Bangalore, IN Scholarship from Prerana Infosys foundation.	<i>2004</i>