

# Sumit Khanna

sumit@penguindreams.org



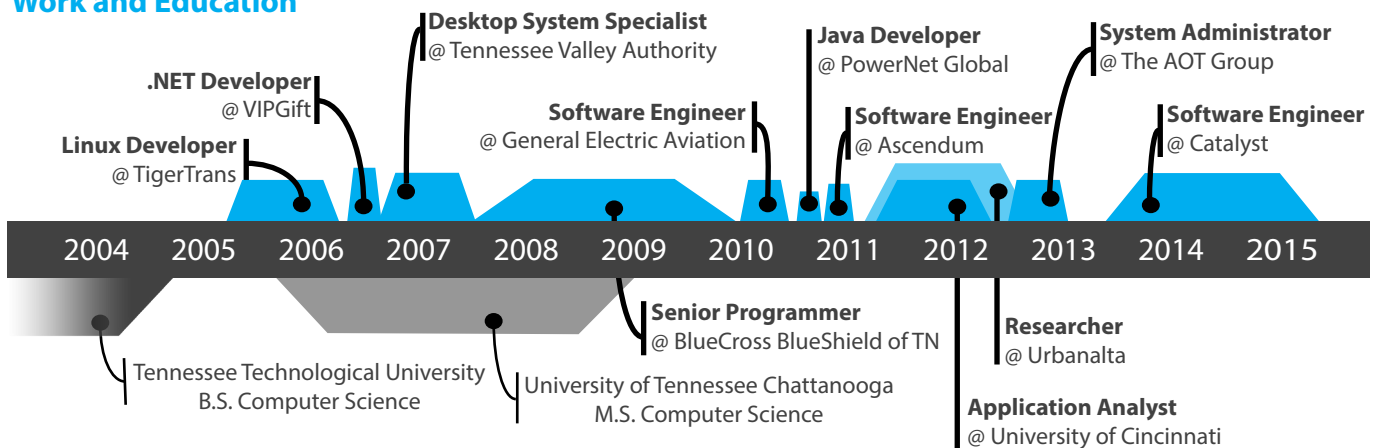
E-mail

In 2011, I became involved in a project where researchers were attempting to use embedded Linux systems to gather data from environmental sensors. With support from the University of Cincinnati, the Municipal Sewer District and the Civic Garden Center, the Green Learning Staging was created. It was a research facility constructed for the purpose of monitoring storm water runoff with different pavement types.

My contribution to the project was BigSense, a suite of open source tools to collect, store and aggregate data from sensor networks. Our publications detail how we've used these tools to monitor storm water run-off, temperatures and rainfall.

My goals include further contributions to the field of sensor networks. I am working to extend BigSense to work with more sensor types and data formats. The tools developed by the BigSense project will always be open source; free to be used and modified by other researchers, students and professionals.

## Work and Education



## Publications

### Open Source REST Services for Environmental Sensor Networking

Rettig, Andrew J., Sumit Khanna, and Richard A. Beck. Applied Geography (2014).

### An Open Source Software Approach to Geospatial Sensor Network Standardization for Urban Runoff

Rettig, Andrew J., Sumit Khanna, Dan Heintzelman, and Richard A. Beck.

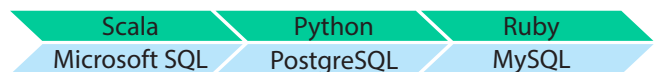
Computers, Environment and Urban Systems 48 (2014): 28-34.

### Monitoring Permeable Paver Runoff with an Open-innovation Geospatial Sensor Network

Rettig, Andrew J., Sumit Khanna, Richard A. Beck, Quinn Wojcik, and Carmen A. McCane.

International Journal of Digital Earth (2014): 1-17

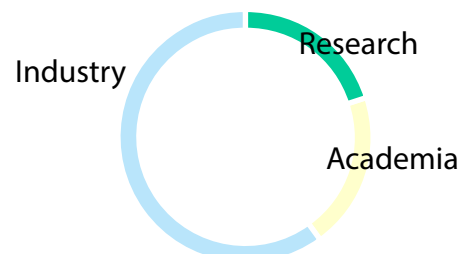
## BigSense Technologies



<https://github.com/bigsense>



## Experience



## Websites

[PenguinDreams.org](http://PenguinDreams.org) - Computer Science

[BigSense.io](http://BigSense.io) - Sensor Networks

[JourneyOfKhan.us](http://JourneyOfKhan.us) - Photography



Computer Science, M.S.  
2009

University of Tennessee Chattanooga



Computer Science, B.S.  
2004

Tennessee Technological University

## Sumit Khanna

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http://penguindreams.org

## Education

### University of Tennessee Chattanooga (2005 – 2009)

- Graduated with a Master of Science in Computer Science
- Thesis: “Breaking the Multi-Colored Box: A Study of CAPTCHA”

### Tennessee Technological University (2000 – 2004)

- Graduated with Bachelors of Science in Computer Science
- President of Association for Computing Machinery (2003 - 1 year)
- Association for Computing Machinery Executive Board (2004 - 1 year)
- Vice President/President Golden Eagle Sports Car Club (2003 - 1 year)

## Publications

### Open Source REST Services for Environmental Sensor Networking

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Applied Geography (2014).

### An Open Source Software Approach to Geospatial Sensor Network Standardization for Urban Runoff

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## Work Experience

May 2013 – March 2015

**Catalyst IT**

Wellington, New Zealand

**Software Engineer** (Full-time)

- Department of the Prime Minister and Cabinet (Alfresco development)
- Telecom/Spark (web and backend development – Java, Scala, Akka, Puppet, Vagrant)
- OpenStack (Security)
- Ministry of Education (Python, Django)

May 2012 – November 2012

**AOT Group**

Melbourne, VIC, Australia

**System Administrator** (September 2012 – November 2012, Contracted)

- Assisted with production data center migration from Brisbane to Melbourne
- VMWare vSphere 5.0, OpenSUSE 11.4, CFEngine Administration
- Active Directory, Power Shell

**Developer** (May 2012 – August 2012, Contracted)

- PHP Web Application Development with PostgreSQL database
- OpenSUSE 11.4 Server Environment
- OpenSUSE 12.1 development (desktop) environment and Subversion version control

January 2011 – November 2012

**Urbanalta Technologies**

Cincinnati, OH, USA

**Computer Scientist** (September 2011 – November 2012, Part-time)

**Researcher** (January 2011 – September 2011, Volunteer)

- Embedded Linux development (OpenWRT)
- Server/Client software development (Scala 2.9 / Python 2.7 / Python 3 / CPython Extensions)
- Windows 2008, OpenSUSE 11.4/12.1 System Administrator
- VMWare vCloud and XenServer Virtualization and Infrastructure Design
- 1-Wire remote sensor development

February 2011 – March 2012      **University of Cincinnati**      Cincinnati, OH, USA

**Application Analyst** (Full-time)

- Identity Management / Implemented Federated Single Sign-On using Shibboleth/SAML2 for InCommon
- Developed web applications and service with Microsoft C# MVC2, WCF
- SuSE Enterprise 11 and Windows 2008/IIS7 System Administrator
- Administered Confluence, Jira, Repliweb, iRise Definition Center
- Bash and Python scripting; SSIS and BizTalk development

August 2010 – November 2010      **Ascendum Solutions LLC**      Blue Ash, OH, USA

**Software Engineer** (Full-time)

- TOMS Shoes e-Commerce / Web
- Extended modules and templates for Magento Enterprise 1.6 and 1.9
- Utilized PHP5, MySQL, Redhat Enterprise, CentOS, Subversion

April 2010 – July 2010      **PowerNet Global Communications**      Fairfield, OH, USA

**Software Engineer II** (July 2010, Full-time)

**Java Developer** (April 2010 – July 2010, Contracted through PSIGroup)

- Development for existing Java desktop application using Swing / JIDE
- Development for Enterprise Java Beans (EJBs) and scheduled jobs running on JBoss
- Utilized Oracle 10g, Eclipse 3.4, Apache Ant, JBoss 4.0, Linux CentoOS, JReport 7
- Linux shell scripting on CentOS for maintenance and diagnostics

January 2010 – March 2010      **General Electric Aviation**      Evendale, OH, USA

**Software Engineer** (Contracted through Tata Consultancy Services / Clairvoyant Techno Solutions)

- Developed internal REST web services on JBoss 4.3 / Java 1.5 / RestEasy API
- Enhanced existing JSF / RichFaces web application
- Utilized Eclipse 3.3, Apache Ant, Spring 3.0 and Oracle 10g Databases

June 2007 – December 2009      **BlueCross BlueShield of TN**      Chattanooga, TN, USA

**Senior Programmer** (August 2008 – December 2009, Full-time)

**Programmer** (June 2007 – August 2008, Full-time)

- Developed applications (standalone and web) and web services to support e-Business
- Platform: J2EE on IBM WebSphere 6.0/6.1 / AIX
- Created SSIS Packages, maintained DTS packages and utilized Sybase, SQL Server 2005 and Active Directory
- Converted legacy ASP applications into Java applications and web services building upon SOA
- Administrated and developed for Interwoven Teamsite and OpenDeploy servers

May 2006 – June 2007      **Tennessee Valley Authority**      Chattanooga, TN, USA

**Desktop System Specialist** (Internship)

- Remotely diagnosed, troubleshoot and resolved computer and phone problems
- Trained to use HP Service Desk software

April 2006 – May 2006      **Incentium** (Formerly VIPGift)      Chattanooga, TN, USA

**.NET Developer** (Full-time)

- Developed for and maintained Visual Basic.NET standalone applications
- Designed applications for existing ASP.NET framework
- Worked with Microsoft SQL 2005 Databases and SSIS packages

April 2005 – March 2006      **TigerTranz**      Chattanooga, TN, USA

**Linux Software Engineer** (Full-time)

- Managed Network Security, Firewalls, Linux Servers, LDAP and Spam/Virus Filters
- Wrote several applications in Java, PHP5, C/C++ and MySQL
- Developed documentation for administrators, developers and end users

2001-2003      **TTU Computer Science Labs**      Cookeville, TN, USA

**Unix System Administrator** (Student Position)

- Installed, Updated and Maintained a cluster of 26 Red Hat Linux computers and mail server
- Kept track of lab workers' payroll and hours

2000      **SurfNChattanooga**      Chattanooga, TN, USA

**HTML/Graphics Designer** (Part-time)

- Designed HTML templates for commercial websites and graphics using LView Pro