

# Avinash Kalyanaraman

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## EDUCATION

- PhD in Computer Science,** *Jan 2014 - Present*  
University of Virginia, Charlottesville.  
Advisor: Kamin Whitehouse **CGPA:** 3.91/4.0
- Master's in Computer Science,** *Aug 2010 - Sep 2012*  
University of Virginia, Charlottesville.  
Advisor: Andrew Grimshaw **CGPA:** 3.90/4.0
- B.E. in Computer Science & Engineering,** *Aug 2006 - May 2010*  
College Of Engineering Guindy, Anna University, India  
**CGPA:** 8.81/10.0

## EXPERIENCE

### University of Virginia

- *Graduate Research Assistant* *Jan 2014 - Present*  
I research in the area of wireless sensor networks and cyber-physical systems. In particular, I build sensing solutions to help track people in homes.

### PacketZoom

- *Software Engineer* *June 2013 - Dec 2013*  
Developer for the PacketZoom transport protocol and proxy. They were designed to accelerate network access of mobile applications by overcoming the shortcomings of TCP.

### Zynga

- *Software Engineer* in Zynga's Platform Team *Oct 2012 - June 2013*  
Member of team which developed the framework for Zynga's backend services  
Involved in evaluating storage systems and moving social network data to NoSQL data-stores like HBase and Cassandra

### University of Virginia

- *High Performance Computing and Distributed Systems Lab* - Research Assistant *Jan 2011 - Sep 2012*  
Researcher and Developer for the [Genesis II grid-OS](#) (one of the software components of [XSEDE](#)<sup>1</sup>)
- *UVa Alliance for Computational Science and Engineering (UVACSE)* - Member *May 2011 - Sep 2012*  
Involved in meeting scientists, training them and porting their programs to the XCG (Cross Campus Grid)
- *Teaching Assistant* for Introduction to Programming *Aug 2010 - May 2011*

### National e-Science Centre, Glasgow

- Summer Research Student* in the [Enroller](#) Project *Summer 2009*

## PUBLICATIONS

### CONFERENCE

1. **Avinash Kalyanaraman**, Dezhi Hong, Elahe Soltanaghaei, Kamin Whitehouse. *FormaTrack: Tracking People based on Body Shape*. Accepted in UbiComp 2017 (ACM IMWUT Vol 1 Issue 3).
2. **Avinash Kalyanaraman**, Erin Griffiths, Kamin Whitehouse. *TransTrack: Tracking Multiple Targets by Sensing their Zone Transitions*. The 12th International Conference on Distributed Computing in Sensing Systems (DCOSS), 2016.
3. **Avinash Kalyanaraman**, Andrew Grimshaw. *Cabinet: Managing Data Efficiently in the Global Federated File System*. The 9th IEEE International Conference on e-Science (e-Science), 2013.

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<sup>1</sup>XSEDE is a national cyber-infrastructure connecting campuses and supercomputing centers under a single namespace

## JOURNAL

1. Erin Griffiths, **Avinash Kalyanaraman**, Juhi Ranjan, Kamin Whitehouse. *An Empirical Design Space Analysis of Doorway Tracking Systems for Real World Environments*. To appear in ACM Transactions on Sensor Networks (TOSN).
2. Andrew Grimshaw, Mark Morgan, and **Avinash Kalyanaraman**. *GFFS –the XSEDE Global Federated File System* Parallel Processing Letters 23.02 (2013).

## WORKSHOP

1. Elahe Soltanaghaei, **Avinash Kalyanaraman**, Kamin Whitehouse. "Peripheral WiFi Vision: Exploiting Multipath Reflections for More Sensitive Human Sensing". The 4<sup>th</sup> Workshop on Physical Analytics (WPA), 2017 (MobiSys 2017 Workshop).
2. **Avinash Kalyanaraman**, Kamin Whitehouse. *An event-based data fusion algorithm for smart cities*. The 1<sup>st</sup> International Workshop on Smart Cities: People, Technology and Data, 2015 (UbiComp 2015 Workshop)

## POSTER

1. Elahe Soltanaghaei, **Avinash Kalyanaraman**, Kamin Whitehouse. "Improving Multipath Resolution with MIMO Smoothing". The 23rd International Conference on Mobile Computing and Networking (MobiCom) 2017.
2. Elahe Soltanaghaei, **Avinash Kalyanaraman**, Kamin Whitehouse. "Occupancy State Detection using WiFi signals". The 15th International Conference on Mobile Systems, Applications, and Services (MobiSys) 2017.
3. **Avinash Kalyanaraman**, Juhi Ranjan, Kamin Whitehouse *Automatic rock climbing route inference using wearables at 2015 ACM Conference on Ubiquitous Computing (UbiComp 2015)*.
4. **Avinash Kalyanaraman**, Blaine Reeder, and Kamin Whitehouse. *Benefits and Challenges of a Height Sensing Approach for In-Home Gait Speed Detection* at the American Medical Informatics Association (AMIA) Annual Symposium. November 2014, Washington DC, USA
5. Ashoke S, **Avinash Kalyanaraman**, Pragadeesh R, A P Shanthi (Authors ordered lexicographically by their first names) *FBGA : An FPGA Based Grid Architecture* at the 16<sup>th</sup> IEEE International Conference on High Performance Computing (HiPC), Student Research Symposium, December 2009.
6. R.O. Sinnott, M. Sarwar, **A. Kalyanaraman**, J.G. Anderson, M. Alexander, J. Greene "Supporting the Language and Literature Research Community through e-Infrastructures" accepted as presentation at the AHM e-Science Conference, Oxford, December 2009.

## TECHNICAL SKILLS

**Languages:** C, C++, Java, Python, Shell script, SQL, Matlab, PHP

**Wireless:** GNU-Radio, USRP, Xethru RADAR, Walabot, Intel 5300 **Parallel Programming:** OpenMP, MPI, CUDA

**Architecture Simulators:** SESC, DiskSim

**NoSQL datastores:** Membase, Cassandra, HBase

**Others:** Android Wear, Intel VTune, YourKit Profiler, Git, SVN, Eclipse, Apache Derby

## RELEVANT COURSES

Cyber Physical Systems, Computational Planet, Statistics for Engineers and Scientists, Wide Area Distributed Systems, Parallel Programming, Algorithms.

## MISC

- Participant at UVA iLabX 2017. 1 of 2 finalists from Engineering School whose research has potential for commercialization.
- Reviewed 20+ conference and journal submissions to UbiComp, MobiSys, IPSN, BuildSys, TOSN.
- Demo-ed the Global Federated File System and Genesis II at SuperComputing 2011 (SC, 2011).
- Participant at the 3<sup>rd</sup> International Winter School on Grid Computing (IWSGC).
- HiPC 2009, Travel Scholarship Recipient.
- Avid quizzzer having won over 50 quizzes- including winning Tata Crucible, Chennai, 2010
- Vice captain of Charlottesville Cricket Club (CVCC) (Mar 2014 - Mar 2016). Selected to represent Virginia (2016).