

# RAGHAV H VENKATNARAYAN

Doctoral Student in Computer Science

Interested in confluences of Mobile Computing, Human Sensing and Wireless networks

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## EXPERIENCE

Graduate Research Assistant

NC State University

📅 May 2016 – Present

📍 Raleigh, NC

- Built a novel machine-learning-based gesture recognition system only using a user's shadow under indoor lighting. Achieved recognition accuracy of 96.36% across 15,000 samples from 20 users for 5 gestures
- Designed a novel data-driven (vs model-based) approach for decoding MIMO streams of indoor visible light communication. Demonstrated an order of magnitude lower Bit Error Rate than conventional channel matrix approaches
- Devised a multi-user activity recognition system using patterns from WiFi signals. Achieved recognition rate of 90.9% for 6 simultaneously performed activities

Graduate Teaching Assistant

NC State University

📅 Aug 2015 – Apr 2016

📍 Raleigh, NC

- Provided teaching assistance for 46 graduate-level students for the Internet of Things (IoT) course. Conducted office hours and delivered hands-on tutorials for programming IoT devices

## AWARDS



National Talent Search Scholar - Govt. of India

Ranked 7 statewide & awarded annual scholarship for 8 years



Academic Distinction - IIIT Hyderabad

Awarded to the top 5% of the graduating class



Best Outgoing Student - VTU Belgaum

Graduated at the top of the class

## SKILLS

Programming & Scripting

Java C++ C Shell Matlab  
Python SQL Javascript Scheme  
L<sup>A</sup>T<sub>E</sub>X

Web Technologies

HTML 5.0 Web2Py J2EE

Databases

MySQL SQLite Oracle DB

Platforms

Arduino RaspberryPi Intel Edison  
Android TI MSP432

## ACADEMIC PROJECTS

Application of Diverse Frequent Patterns for Item based Recommendation Systems

- Built an improvised Apriori style miner that exploits diversity as part of a research study on collaborative recommender systems
- Improved performance by 10%(Java)

Wiki Search

- Built a command-line search engine for Wikipedia data
- Used a complete 40 GB XML dump of Wikipedia to search offline and produce results in milliseconds (Java)

My MySQL

- Built a simple database system similar to MySQL with indexing, join algorithms and an online shell to interpret SQL queries and execute them (C++)

Tag Recommender

- Built a recommendation system using a Support Vector Machine to suggest relevant tags to users for a given URL and description, similar to del.icio.us (Java)

Expense Manager

- Built an Android application for managing personal expenses
- Implemented Geo fencing for location based reminders with optimal power usage (Java, SQLite)

## EDUCATION

Ph.D. in Computer Science

NC State University

📅 2015 – Present

📍 Raleigh, NC

GPA – 3.72/4.00

M.Tech. in Computer Science & Engineering

IIIT Hyderabad

📅 2012 – 2014

📍 Hyderabad, India

GPA – 9.28/10.00

B.E. in Computer Science

VTU

📅 2008 – 2012

📍 Belgaum, India

GPA – 81.5%

## PUBLICATIONS

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### Journal Articles

- Raghav Hampapur Venkatnarayan, Muhammad Shahzad. "Gesture Recognition Using Ambient Light", In Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, (UbiComp/IMWUT), Vol. 2, No. 1, 2018.

### Refereed Conference Papers

- Raghav Hampapur Venkatnarayan, Griffin Page, Muhammad Shahzad. "Multi-User Activity Recognition using WiFi", In Proceedings of the 16th ACM International Conference on Mobile Systems, Applications, and Services (MobiSys), Munich, Germany, June 2018.

### Refereed Conference Papers – Under Submission

- Raghav Hampapur Venkatnarayan, Muhammad Shahzad. "Accurately Decoding MIMO Streams in Visible Light Communication", In Proceedings of the The 14th International Conference on emerging Networking EXperiments and Technologies(CoNEXT), Heraklion/Crete, Greece, December 2018

## REFERENCES

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### Dr. Muhammad Shahzad

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✉ NC State University, Raleigh – NC

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### Dr. Harry Perros

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### Dr. Ashwin Gumaste

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