Parikshit Sharma

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Work Experience

Current - APRIL 2015	**Lead Engineer** at MOSIX TECHNOLOGIES, New Delhi At Mosixtech we made use of gamification to ease fashion and food discovery by engaging users in quizzes, curated to discover new products and outlets around. I marshalled the product design and development efforts and was in-charge of developing and maintaining our Android app (TieApp) which has gained 500+ users in 3 months. I gained proficiency in all aspects of software development life cycle, from capturing requirements through documentation and wireframes to development, testing and deployment
APRIL 2015 JULY 2013	**Blue Scholar** at IBM INDIA RESEARCH LAB, New Delhi *Telecom Research and Innovation Group* My work spanned research in **smartphone sensing**, **participatory sensing** and **context aware services**. It involved analyzing raw smartphone sensor data and transforming it into meaningful semantic abstractions to infer user context accurately. I worked on challenging problems such as indoor localization and group detection. My research efforts led to three full publications, one adjunct publication and a patent.
JULY 2011 - MAY 2011	**Research Intern** at IBM INDIA RESEARCH LAB, New Delhi *Telecom Research and Innovation Group* I worked on improving security of enterprise data on personal devices used to access and create privileged company data as part of an enterprise's 'Bring Your Own Device' policy. My work was published in the Adjunct proceedings of UbiComp 2013 and I received a pre-placement offer for my distinctive performance.

Education

MAY 2013	Bachelor of Technology in COMPUTER SCIENCE AND ENGINEERING, **Indian Institute of Technology**, Delhi [AIR - 44]	GPA: 9.09/10

Awards and Recognitions

SEPT. 2014	**USHER : An intelligent context aware tour companion** • Won the **Best Cognitive Application** and **Best Hackathon Project 1ˢᵗ Runners Up** in 2014 IBM Worldwide MobileFirst Hackathon. • Showcased among top three applications at **IBM Impact, Las Vegas**. • Published in IUI Companion '15 and featured in **MIT Technology Review**
JULY 2011	**Jawahar Gajree Memorial Scholarship** for outstanding academic performance at IIT Delhi for two consecutive academic years from 2011-13.
MAY 2011	**Summer Undergraduate Research Award** for research contribution in SOCIAL NEWS READER : a news rendering system that helps discover diverse content by tapping into the social graph of a user.
MAY 2010	**IIT Delhi Semester Merit Award** for being amongst the top 7% students at IIT Delhi.
JULY 2009	**Merit cum Means Scholarship** covering tuition fees for all eight semesters at IIT Delhi.

Publications and Patents

[1] P. Kodeswaran, D. Chakraborty, **P. Sharma**, S. Mukherjea, and A. Joshi, "Combining smart phone and infrastructure sensors to improve security in enterprise settings," in *UbiComp Adjunct*, ACM, 2013.

[2] **P. Sharma**, D. Chakraborty, N. Banerjee, D. Banerjee, S. K. Agarwal, and S. Mittal, "KARMA: Improving wifi-based indoor localization with dynamic causality calibration," in *SECON*, IEEE, 2014.

[3] **P. Sharma**, D. Chakraborty, and S. Mittal, "CANOE: opportunistic calibration assisted micro navigation in dense open environments," in *COMSNETS*, IEEE, 2015.

[4] S. Toshniwal, **P. Sharma**, S. Srivastava, and R. Sehgal, "USHER : An intelligent tour companion," in *IUI Companion*, ACM, 2015.

[5] D. Banerjee, S. K. Agarwal, and **P. Sharma**, "Improving floor localization accuracy in 3d spaces using barometer," in *ISWC*, ACM, 2015.

[6] **P. Sharma**, D. Chakraborty, and S. Mittal, "Crowd assisted micro navigation," 2014. US Patent Application US 14/582352 [Patent pending].

PROJECTS

Smartphone performance and security

Anatomizing web application performance on smartphones over 3G [Bachelor's Thesis]   [PDF]

- Network conditions, smartphone processing power and content type and distribution play an important role in impacting the user perceived performance of web applications on smartphones.
- Key metrics that impact performance of web applications such as RTT, DNS lookup time, page size etc. were categorized and their deviation under different network conditions was studied.
- Subjective user ratings for usage of different applications were collected and correlated to the aforementioned metrics to understand their impact on the perceived performance.

Using smart phone and infrastructure sensors to improve security of BYOD devices in   [PDF]
enterprise settings [UbiComp Adjunct'13]

- Protecting enterprise data while ensuring ease of usage and flexibility for creating and storing unprotected personal data on BYOD devices is a major challenge.
- The usage of semantic context inferred from attributes such as location and OSN status towards managing security policies on phones was proposed.
- Developed a cost-optimized distributed rule execution framework for minimizing battery usage.

Indoor localization, Smartphone and participatory sensing

Utilizing Wifi infrastructure to localize smartphone users in indoor spaces [SECON '14]   [PDF]

- Wifi based localization algorithms are prone to several causality factors e.g. user orientation.
- Calibration functions to compensate for changes in these factors were developed.
- A dynamic linear compensation model was proposed that systematically applies a set of calibration functions to compensate for overall change in environmental state.

Improving floor localization accuracy in 3D spaces using barometer [ISWC '15]   [PDF]

- 3D spaces such as malls are marked by atrium/hollow space and large corridors that cause minimal attenuation in Wifi signals, leading to horizontal and vertical errors in predicted location.
- A pressure drift elimination algorithm was proposed to remove accumulated error in barometer.
- Particle filtering was used to accurately predict floor of a user by identifying floor change events.

Navigation in GPS degraded regions using crowdsensed pivot points [COMSNETS '15]   [PDF]

- Navigation in crowded space requires fine tracking to ensure convergence and is frustrating due to deviation caused from intended route by delayed location fixes and incorrect orientation.
- A novel tunnel based navigation methodology was proposed which allows users the flexibility of using their own sense to wade through crowd while keeping the drifts constrained.
- A crowd sensed methodology was designed to implement tunnels using static participatory users.

Context based services

Pushing notification to visitors in the mall – When is (and is it) a good idea?   [PDF]

- User context inferred via mobile sensing was used to push relevant discounts to users in a mall to study and understand their reaction to such targeted contextual services.
- Studies reveal that user context alone does not determine utility of the notification and intention of mall visit is a crucial factor that determines user reaction to such discounts.
- Surveys indicate that as long as users get relevant messages, they are happy to share some context.

USHER : An intelligent context aware Tour Companion [IUI Companion '15]   [PDF]

- Traditional audio guides in museums and art galleries consisting of handheld devices with pre-recorded messages provide static content to users with no interactivity.
- An intelligent tour companion on smartphones was built that infers and uses user context i.e. location, locomotion and orientation to provide context rich information about his surroundings.
- The application allows for dynamic interaction with a cognitive Question Answer service that enables users to ask contextual queries based on their location e.g. "Who painted this painting?"

COMPUTER SKILLS

Languages :   Java, C/C++, Python, PHP, MYSQL, HTML, Javascript, jQuery, MATLAB, LATEX
Operating Systems :   Android, iOS, Linux, Windows