Dr. Imad Afyouni

Curriculum vitae

Phone : +97165053507
E-mail : iafyouni[at]sharjah[dot]ac[dot]ae

Education

January 2010 – 2013 (Defended in 17/09/2013)

Ph.D. in Computer Science : Naval Academy Research Institute/University of Western Brittany, FRANCE.
Supervisor : Pr. Christophe Claramunt
Co-supervisor : Dr. Cyril Ray
• Thesis subject : *"Knowledge Representation and Management in Indoor Mobile Environments."*
• Keywords : Maritime Navigation, Mobile computing, ambient intelligence, knowledge and data management, context-aware indoor navigation, continuous processing, location-dependent queries, hierarchical data models, query language, moving objects.
• *Graduated with highest honours.*

2008 – 2009

Master of Science in Informatics at Grenoble (MOSIG) : Joseph Fourier University (UJF), Grenoble. English Courseware - DEMIPS Option : Distributed, Embedded, Mobile, Interactive and Parallel Systems.
• Thesis subject : Scaling Byzatine Fault Tolerant protocols To WAN.
• Advisor : Pr. Vivien QUEMA, SARDES team - INRIA Rhône-Alpes.
• *Graduated with honours.*

2006 – 2008

Bachelor's degree in Computer Science : Lebanese University - Faculty of Science - Tripoli.
• *Graduated with highest honours* (1^{st}/43).

2004 – 2006

1^{st} & 2^{nd} years of a Bachelor's degree in Mathematics - Informatics : Lebanese University - Faculty of Science - Tripoli.
• *Graduated with high honours.*

2003 – 2004

High School Diploma : General Sciences (SG).

Professional Experience

August 2017 - Present

Assistant Professor in Computer Science : Department of Computer Science, College of Sciences, University of Sharjah, United Arab Emirates. Developing and teaching undergraduate courses in Computer Science. Developing research activities in two main research groups : Big Data Mining and Multimedia Research Group ; and Machine Learning and Arabic Language Processing Research Group.

August 2015 - August 2017

Full-Time Researcher in Computer Science : GIS Technology Innovation Center, Wadi Makkah, Saudi Arabia. Wadi Makkah is a platform of startup companies created from innovative and research projects. TIC helps transforming innovative ideas and projects into economically viable products.

• Mission : Contributing and leading several projects for the effective understanding, management, and analysis of spatial and spatio-temporal data within dynamic environments. Also participating in different projects on the development of multimedia-based health care services and serious games used in a variety of fields such as training simulations, national defense, and education (See current and previous projects in the next section).

Novembre 2016 - Present **Associate Research Fellow in Computer Science :** Université Grenoble Alpes, Grenoble, France. Recently joined the Grenoble Informatics Laboratory (LIG), and will be working on research fields including Information Retrieval and Mobile Computing in collaboration with Prof. Ahmed Lbath from the MRIM research group.

• Mission : Co-Supervising Faizan Ur Rehaman, a PhD student in the Université Grenoble Alpes on a research topic related to build the next generation of digital maps, often we refer to it as, Deep Maps.

Sept. 2014 - August 2015 **Assistant Professor in Computer Science :** American University of the Middle East/Kuwait University.
• Mission : Conducting teaching activities in the College of Engineering at AUM for undergraduate for Computer Engineering/Science students. Also, I am co-leading a research project in collaboration with Kuwait University on context-aware services in mixed indoor/outdoor environments.
• Developed skills :
- Proficiency in preparing syllabus, delivering lectures, and holding group conversations on related-topics with students
- Ability to teach students with practical examples
- Extensive participation in committees and extra-curricular activities.

April 2014 - Sept. 2014 **PostDoctoral Research Fellow :** KACST GIS Technology Innovation Center, Umm Al-Qura University, KSA.
• Mission : Worked on the research, design, and specification of two main projects : eHealth/HealthGIS and Hajj & Umra projects.

Sept. 2013 - April 2014 **Research and Development PostDoc/Engineer :** BI*Where - Paris
• Mission : Enhances Business Intelligence systems with spatial data providers in order to identify hidden trends, dependencies and patterns. This includes data integration, data analysis, and data visualization challenges.

Jan. 2010 - Sept. 2013 **Research and Teaching Assistant :** Naval Academy Research Institute (IRENav) - MoTIM team.
• PhD. in Computer Science (written in English) on context-aware processing of continuous location-dependent queries in indoor mobile environments. The main objective of this work is to investigate :
"Data and knowledge representation of indoor mobile environments incorporated with user-centred context-awareness, and to discuss data management issues in indoor context-aware navigation systems. Within this context, the underlying principles to represent a context-aware indoor data model are presented, as well as methods and algorithms for the continuous location-dependent query processing in indoor environments are introduced. A prototype for handling those queries has been developed as an extension for the open source DBMS PostgreSQL."
• Research topics : data representation, data management, query processing, LBS.
• Technologies : RDBMS PostreSQL, PL/pgSQL, Dynamic libraries C/C++.
• Teaching Assistant in the Computer Science Department to the engineering students of the Naval Academy (120 to 140 hours per year).

Sept. to Oct. 2011 **Scientific mission :** Scientific visitor at the University of Zaragoza - Spain. Collaboration with Dr. Sergio Ilarri - Distributed Information Systems (SID) team.
• Research topic : Continuous processing of location-dependent queries in indoor environments.

Additional trainings

Thematic School on Ambient Intelligence - Lille (June 2011 - one week).
Doctoriales Bretagne 2011 (December - one week).
Traineeship SIPA - Introduction to Pedagogy - (March 2011 - 2 days).

February to June 2009 **Research Internship :** INRIA Grenoble Rhône-Alpes, SARDES team.
• Advisor : Pr. Vivien QUEMA.
• Research topic : Scaling Byzantine Fault Tolerant protocols To WAN. The goal of this project was to propose a Byzantine replication protocol for wide area networks, and then to perform an implementation of the protocol based on the BFT protocols simulator (BftSim) developed in C++ (Report available in English).

• Technologies : BftSim simulator, ns-2 network simulator, declarative language Overlog, C++, Perl, Tcl/Tk.

May to August 2008 — **Final study project :** Lebanese University - Faculty of Science - Tripoli.
• Research topic : Development of a website of the university by using technologies such as ASP.Net 2.0, le langage C#, Flash et Css Style Sheet.

May to July 2008 — **Internship in collaboration with Microsoft Corporation :** Under the program "Microsoft Summer Internship Program 2008" in coordination with the Lebanese Association of Programmers - Tripoli, Lebanon.

Nov. 2006 to Jan. 2007 — **Internship at "Intelligile Inc." :** Tripoli, Lebanon.
Subject : Software testing in section "Software Quality Assurance".

Research Projects

Ongoing Projects

• Dec 2015 – Dec 2017 : Leading a research project in TIC for the development of Smart and Deep Maps, by positing that maps in future will intelligently self-update themselves based on information dynamically extracted from social media streams, crowd-sourced data, and on-line news sources. These maps will infer information about new places of interest, events, and statistical analytics from a diversity of sources in real-time. The challenges include developing a scalable and efficient system to deal with a variety of unstructured data streams, applying deep learning techniques to extract relevant information from these streams, and inferring the spatio-temporal scope of each new piece of information. This provides a unique and dynamic map browsing experience at different abstraction levels.

• April 2015 – Dec 2016 : Leading a research and development project on Serious Games in eHealth towards the development of a Context-Aware Health Monitoring solution (TIC, Wadi Makkah, Saudi Arabia). Mainly, this project introduces a patient-adaptive environment for the gamification of hand therapies in order to facilitate and encourage the rehabilitation process. The real-time system handles streams of data generated by the 3D monitoring device (Leap Motion) and the patient performance within the game, in order to produce actionable insights and decisions regarding their quality of improvements.

• Jan 2016 – Dec 2016 : Leading a research and development project in TIC on Location Tracking and Semantic Annotations of Moving Object Trajectories in Indoor Environments. The system model is based on an indoor positioning technology that consists of a network of Bluetooth Low-Energy (BLE) tags and multiple implemented protocols to enable indoor localization, as well as passive and active crowd tracking. Different data mining and semantic annotation methods are applied to discover users' trajectories from untrustworthy sensor data.

• Sept 2016 – Sept 2017 : Co-leading a research and development project in TIC on Vision-Enhanced Location Tracking in Indoor Environments. The system combines an indoor positioning technology that consists of a network of Bluetooth Low-Energy (BLE) tags and the different surveillance cameras existing indoors, so that a more accurate and video-based location tracking can be provided. Such a system can be perfectly applied to tracking children in malls or any other indoor space.

• 2014 – 2017 : Co-leading a research project in Kuwait for three years on Context-aware navigation services in indoor/outdoor environments (3 Research Assistants are involved in this project). Research topics include : Database Management, Query Processing, Geographic Information Systems.

Past Projects

• April – August 2014 : Participation in an R&D project in Saudi Arabia on Hajj and Umrah Management Systems, KACST NSTIP Grant, 2014. This includes the collection, management, and analysis of data from Hajj crowds.

• 2012 – 2013 : Participation in a joint French-Serbian research project (PHC Pavle Savic) that aims at investigating semantic and context-aware techniques to improve the quality and adaptability of Location-Based Services (LBS) in indoor environments. This work is in collaboration with Dr. Dragan Stojanovic from the University of Niš - Serbia.

• 2011 – 2014 : Collaboration with Dr. Sergio Ilarri from the University of Zaragoza - Spain on the continuous processing of location-dependent queries in indoor environments.

• 2012 – 2013 : Member of the MOVE COST Action, and participate in the Working Group (WG2) on "Representation of Movement Data and Spatio-temporal Databases" (http ://www.move-cost.info).

National Networks

• Member of the SIF (Société Informatique de France) national network of Computer Science in France.

Scientific Advising

PhD Research Advising

• Co-supervising Faizan Ur Rehman (2014-2018) : a PhD. student in Computer Science at Grenoble University, France. Research topic : *Towards The Next Generation of Maps : From Live Streams to Live Events.*

Master Thesis

• Co-supervising Fedaa Hasan Qaswal (2018-2019) : a Master's student in Computer Science, University of Sharjah, UAE. Research topic : *Dynamic Trip Planning Based on Extracted Social Events.*

• Supervising Abdullah Bdair (2018-2019) : a Master's student in Computer Science, Abu Dhabi University, UAE. Research topic : *Multi-Source, Multi-Modal Event Detection From Social Media.*

• Supervising Abdullah Sobhi (2018-2019) : a Master's student in Computer Science, University of Sharjah, UAE. Research topic : *Arabic NLP and Social Event Detection.*

Other Advising

• Co-advised Ahmad Muaz Qamar (2014-2017) : a PhD. student in Computer Science at Universiti Sains Malaysia. Research topic : *A multimedia e-health framework towards an interactive and non-invasive therapy monitoring environment.*

• Co-advised Akhlaq Ahmad (2015-2016) : a PhD. student in Computer Science at the International Islamic University of Malaysia, and in collaboration with Umm Al-Qura University. Research topic : *Context-aware services for a large crowd.*

• Supervising/ed several computer engineers on different R&D projects :

- Aamir Khan (Feb 2018 – Present) : Project title : *Event detection from Social Media and its Aplpications.*

- Imtinan Azhar (June 2018 – Present) : Project title : *Multi-Modal Event detection from Social Media.*

- Bilal Sadeq (Dec 2015 – August 2016) : Project title : *A self Sustainable Crowdsourced Learning System for Dynamic Ride Sharing.*

- Mashaal Musleh (February–August 2016) : Project title : *Efficient Location Tracking Towards Pattern Analysis in Indoor Environments.*

- Syed Hussain (January – August 2016) : Project title : *Gamifying Hand Physical Therapy with Intelligent 3D Navigation.*

- Zaid Tariq (March – May 2016) : Project title : *Efficient Power Consumption Towards Passibe Indoor Tracking.*

• Co-advised Gabriel Pascual (in 2011) : a Master student in Computer Science to get the degree of Master 1 at the University of Rennes 1, France. Subject : *Hybrid and Opportunistic Indoor Localization.*

Naval Academy - Project Supervision

• Within this period, I have been involved in the supervision of 5 student projects :

2012 → Determination of groups of persons in social networks by different clustering techniques.
2012 → Information systems for decision support on board of submarines.
2011 → Spatial and contextual ontology for modeling indoor smart environments.
2011 → Modeling agents interacting in a built environment using the multiagent system MadKit.
2010 → Indoor modeling and simulation of pedestrian traffic.

Thesis Examination

PhD Thesis co-Advisor	Towards a framework for multiscale social event extraction and visualization. Defended on December 7, 2018.
Master Thesis Examiner	Design and Analysis of a Active, Passive, and Adaptive User Interface Frameworks with Integrated Multimodal Emotion Recognition. Defended on May 27, 2019.
Master Thesis Examiner	Design and Analysis of a Dual-Layer 3D User Interface for an Immersive VR 3D Desktop Environment. Defended on December 25, 2018.
Master Thesis Examiner	Road Traffic Analysis and Prediction by Fusing Data from Multiple Social Network Sites. Defended on May 22, 2018.

Grants, Awards, and Distinctions

UoS Internal Research Grant (2018-2020)	Two years seed fund from University of Sharjah (180-214-1163-P) entitled "Enriching Physical Rehabilitation with Adaptive Serious Games". Fund Amount (37000 AED).
KACST Research Program	One year fund from KACST research grant program (M-S-37-60) 28/12/2016 entitled "Gamifying Hand Therapy Rehabilitation with Intelligent 3D Navigation". Fund (143.000 SAR).
Kuwait University Research Program	Three years fund from Kuwait University research grants (QE 04/14) 04/2015 entitled "Context-aware navigation services in indoor/outdoor environments". Fund (150.000 $).
Best Paper Award	This award was granted on the paper entitled : "A GIS-based Serious Game Recommender for Online Physical Therapy" at the ACM SIGSPATIAL Workshop on HealthGIS, November 2014.
Best Paper Award	This award was granted on the paper entitled : "Towards a Mobile and Context-Aware Framework from Crowdsourced Data" at the ICT4M Conference, November 2014.
Best Demo Award	This award was granted on the paper entitled : "A GIS-based Serious Game Interface for Therapy Monitoring" at the ACM SIGSPATIAL Conference, November 2014.
Mobility grants	A grant awarded by the European action COST MOVE to participate in the Delft Workshop - Netherlands, March 2012. A short term scientific mission (STSM) funded by the European action COST - MOVE (Knowledge Discovery from Moving Objects) at the University of Zaragoza between September and October 2011. A mobility grant awarded by the MAGIS GDR research group to participate in the CQFD Workshop, Calgary - Canada, June 2010.

Reviewer/PC Member for International Journals/Conferences

Peer-reviewed Journals	Distributed and Parallel Databases (DAPD), Springer. GeoInformatica, Springer. International Journal of Geographical Information Science (IJGIS), T&F. Automation in Construction, Elsevier. Mobile Information Systems, Hindawi Publishing Corporation. The Scientific World Journal, Hindawi Publishing Corporation. Open Journal of Databases (OJDB), Research online Publishing.
Conferences	ACM SIGSSPATIAL 2015,2016. Web Information System Engineering (WISE 2016). Web and Wireless Geographical Information Systems (W2GIS 2015,2017). ACS/IEEE International Conference on Computer Systems and Applications (AICCSA 2015,2016,2017,2019).
Program Committee	International Conference on Computer Systems and Applications (AICCSA 2017,2019). The 3rd International Conference on Big Data Research (ICBDR 2019)
Conference Co-Chair	Co-chair of The Third International Symposium on Social Computing and Arabic Language Processing (IEEE SCALP ?2019) in Conjunction with AICCSA 2019.

Computing skills

Programming	C, C++, Java, C#, Android, R, MATLAB, Prolog, Assembly, systemC, Unity3D, Tcl/Tk
Algorithmic	High performance and distributed programming (Map/Reduce), statistics and probabilistic methods, Mobile Application Development, game programming, graph and network algorithms, numerical computation
Databases	PostreSQL, PL/pgSQL, Hadoop, Spark, Kafka, ElasticSearch, MySQL, Oracle, PL/SQL, noSQL, UML
Web development	HTML5, PHP, JSP, Servlet, ASP.Net, CSS
OS Systems	GNU/Linux (Ubuntu, Debian), Mac OS X, Windows
Miscellaneous	LaTeX, Gimp, Inkscape, Blender, Maple, Photoshop, Macro Media Flash

Teaching Activities

University of Sharjah, UAE (Academic year 2017 - 2018)	Currently involved in diverse C.S. courses for undergraduate Computer Science/Engineering students at UoS. The work load was 12 credits on average per semester. This mainly includes Databases Management Systems, Mobile Apps Design and Development (Android), 3D Design and Game Development (using Unity3D), Computer Organization and Assembly Language, and C++ Programming.
American University of the Middle East, Kuwait (Academic year 2014-2015)	Have been involved in programming courses for undergraduate Computer Engineering students at AUM. The work load was 12 credits on average per semester (i.e., 12 hours per week). This mainly includes Advanced C, object-oriented, and database programming. A brief description of courses being taught in this academic year is as follows : *Advanced Database Programming :* Topics include advanced data manipulation, storage considerations, stored procedures and trigger design and implementation, and query optimization. → Lectures in Spring 2015 (3 hours per week) → Practical labs Spring 2015 (2 hours per week) *Advanced C Programming :* Topics include files, dynamic data structures, and pointers (in C), and Object Oriented Programming (C++).

→ Lectures in Fall 2014 (two sections : 3*2 hours per week) and Spring 2015 (three sections : 3*3 hours per week)

Programming Applications For Engineers : Fundamental algorithms and data structures ; and use of programming logic in solving engineering problems.
→ Lectures in Fall 2014 (two sections : 3*2 hours per week)

Naval Academy, France (teaching between January 2010 and July 2013)

Courses during that period deal with a wide range of teaching in Computer Science. These courses represent a total volume of $\simeq$ 500 of tutorials and practical courses. A summary of the subjects taught is presented as follows :

Algorithmic and programming : Algorithmic concepts (in C) and Object Oriented Programming (C++).
→ Practical courses in algorithmic in 2012 (38 hours)
→ Practical courses C++ since 2010 (4*16 hours)

Databases and Web : Concepts, manipulation, and querying relational databases, along with methods allowing linking web services with databases.
→ Practical courses in Databases since 2012 (2*20 hours)

Wi-Fi Networks and Security : Principles on how to establish wifi networks in infrastructure, ad-hoc, and monitor modes. In a second part, authentication and encryption systems (WEP, WPA, Mac Filtering) are studied.
→ Practical courses Wi-Fi since 2010 (4*21 hours)

Simulation & Artificial Intelligence : This module introduces the multi-agent paradigm and the intrinsic properties of agents, and then introduces a set of methods used in AI, including genetic algorithms.
→ Practical courses Simulation & IA in 2010, 2011 et 2013 (3*14 hours)

Location-based Services : This course covers technologies related to positioning systems, as well as the principles of spatio-temporal DB. The module is applied to the monitoring of maritime navigation and the design of mobile web services (Google Maps) on the campus of the Naval Academy.
→ Practical courses in 2010, 2011 et 2013 (3*14 hours)

OS & Computer Architecture : General principles of computer architecture and operating systems functionalities.
→ Practical courses in 2010, 2011 (2*16 hours)

Networks & Security : general concepts on network protocols. Introduction to techniques related to security attacks and network vulnerabilities.
→ Practical courses in 2010, 2012 (2*20 hours)

Publications

Ph.D. Dissertation

Imad Afyouni, *Knowledge Representation and Management in Indoor Mobile Environments*, Naval Academy Research Institute (IRENav), Ph.D. Thesis, 217 pages, September 2013.

Journal Articles

Faizan Ur Rehman, Imad Afyouni, Ahmed Lbath, Saleh Basalamah. Building Socially-Enabled Event-Enriched Maps. GeoInformatica, Special Issue on Analytics for Local Events and News, Springer, 2019 (In Revision, ISI : IF : 2.091).

Imad Afyouni, Faizan Ur Rehman, Sohaib Ghani, Ahmad Qamar, Syed Osama Hussain, Bilal Sadiq, Abdullah Murad, Saleh Basalamah. An Intelligent Therapy-Driven Gamification Platform for Hand Rehabilitation. *Journal of User Modeling and User-Adapted Interaction (UMUAI)*, 27(2) :215–265, 2017, DOI : 10.1007/s11257-017-9191-4, Springer Verlag, (A Core Ranking, ISI : 5 YR IF : 3.625).

Imad Afyouni, Cyril Ray, Sergio Ilarri, Christophe Claramunt. A PostgreSQL Extension for Continuous Path and Range Queries in Indoor Mobile Environments, *Journal of Pervasive and Mobile Computing (PMC), Special Issue on Information Management in Mobile Applications*, 15(1) :128–150, 2013, Elsevier (ISI : 5 YR IF : 2.36).

Imad Afyouni, Cyril Ray, Christophe Claramunt. Spatial Models for Indoor and Context-Aware Navigation Systems : A Survey. *Journal of Spatial Information Science, (JOSIS)*, 4(1), pages 85-123, 2012, ISSN 1948-660X.

Imad Afyouni, Faizan Ur Rehman, Sohaib Ghani, Ahmad Qamar, Saleh Basalamah. Gamifying Hand Physical Therapy with Intelligent 3D Navigation. *ACM SIGSPATIAL Newsletter, special issue on Health GIS*, 8(1), pages 1–8, March 2016, ACM.

Imad Afyouni, Sergio Ilarri, Cyril Ray, Christophe Claramunt. Traitement continu des requêtes dépendantes de la localisation dans des environnements intérieurs. *Revue de Technique et Science Informatiques (TSI)*, 34(3), pages 203-231, 2015, Lavoisier.

Imad Afyouni, Sergio Ilarri, Cyril Ray, Christophe Claramunt. Context-Aware Processing of Continuous Location- Dependent Queries in Indoor Environments, *Journal of Ambient Intelligence and Smart Environments (JAISE), Special Issue on Context-Aware Systems*, 5(1) :65-88, IOS Press, 2013, doi :10.3233/ AIS-120186 (ISI : 5 YR IF : 1.32).

Patents

Imad Afyouni, Anas Einea. *Enriching Physical Rehabilitation with Adaptive Serious Games* . December 2018, (Status : submitted to US Patent and Trademark Office).

Akhlaq Ahmad, Ahmad Qamar, Abdullah Murad, Mohamed Abdur Rahman, Faizan Ur. Rehman, Bilal Sadiq, Imad Afyouni. *Multimedia-based Browsing of Clustered Multiple Points of Interests (POI) at a single GPS location.* March 2015, (Status : Filed in US Patent and Trademark Office).

Book Chapters

Imad Afyouni, Cyril Ray, Christophe Claramunt. Representation : Indoor Spaces. *The International Encyclopedia of GIS : People, the Earth, Environment, and Technology*, pages 1–12, 2016, DOI : 10.1002/9781118786352.wbieg0900, John Wiley & Sons, Ltd.

International Conferences

Imad Afyouni, Anas Einea, Abdullah Murad. Adaptive Virtual Coaching in Serious Games. Submitted to *Proceedings of the IEEE Conference on Games (CoG 2019)*, London, UK, 20-23 August 2019.

Imad Afyouni, Anas Einea, Abdullah Murad. An Adaptive Gaming Framework for TeleRehabilitation. *Proceedings of the PErvasive Technologies Related to Assistive Environments (PETRA 2019) conference*, Rhodes Island, Greece, ACM, 5-7 June 2019.

Imad Afyouni, Anas Einea, Abdullah Murad. RehaBot : A Virtual Assistant Towards Adaptive & Personalized TeleRehabilitation. *Proceedings of the 27th ACM Conference On User Modelling, Adaptation And Personalization (ACM UMAP)*, Larnaca, Cyprus, 9-12 June 2019.

Imad Afyouni, Ahmad Qamar, Syed Osama Hussain, Faizan Ur Rehman, Bilal Sadiq, Abdullah Murad. Motion-Based Serious Games for Hand Assistive Rehabilitation. *Proceedings of the 21st International Conference on Intelligent User Interfaces (ACM IUI 2017)*, Cyprus, pages 133–136, ACM, March 2017.

Faizan Ur. Rehman, Imad Afyouni, Ahmed Lbath, Sohaib Khan, Saleh Basalamah, Mohamed Mokbel. Building Multi-Resolution Event-Enriched Maps From Social Data, *Proceedings of the 20th International Conference on Extending Database Technology (EDBT' 2017)*, Venice, Italy, pages 594–597, March 2017, OpenProceedings.org.

Faizan Ur. Rehman, Imad Afyouni, Ahmed Lbath, Saleh Basalamah. Towards Building Smart Maps from Heterogeneous Data Sources, The Ninth International Conference on Advanced Geographic Information Systems, Applications, and Services (GEOProcessing 2017), Nice, France, pages 9–14, IARIA, March 2017.

Faizan Ur. Rehman, Ahmed Lbath, Imad Afyouni, Bilal Sadiq, Mohamed Abdur Rahman, Saleh Basalamah, Abdullah Murad. Semantic Multimedia-Enhanced Spatio-temporal Queries in a Crowdsourced Environment, *Proceedings of the 23rd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, pages 100 :1–100 :4, WA, USA, 2015.

Akhlaq Ahmad, Imad Afyouni, Abdullah Murad, Mohamed Abdur Rahman, Faizan Ur. Rehman, Bilal Sadiq, Saleh Basalamah, Abdelmajid Khelil. ST-Diary : A Multimedia Authoring Environment for Crowdsourced Spatio-Temporal Events, *Proceedings of the 8th ACM SIGSPATIAL International Workshop on Location-Based Social Networks (LBSN' 2015)*, pages 1–7, WA, USA, 2015.

Akhlaq Ahmad, Mohamed R. Wahiddin, Mohamed Abdur Rahman, Imad Afyouni, Bilal Sadiq, Faizan Ur. Rehman, Sohaib Ghani. Scale-Free Network Analysis of a Large Crowd through their Spatio-Temporal Activities, *Proceedings of the 4th International Conference on Advanced Computer Science Applications and Technologies (ACSAT' 2015)*, pages 127–132, Malaysia, 2015.

Faizan Ur. Rehman, Ahmed Lbath, Akhlaq Ahmad, Bilal Sadiq, Abdullah Murad, Imad Afyouni, Mohamed Abdur Rahman, Saleh Basalamah. A Constraint-Aware Optimized Path Recommender in a Crowdsourced Environment, *Proceedings of the 12th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA' 2015)*, 8 pages, Morocco, 2015.

Imad Afyouni, Faizan Ur. Rehman, Ahmad Qamar, Akhlaq Ahmad, Mohamed Abdur Rahman, Saleh Basalamah. A GIS-based Serious Game Recommender for Online Physical Therapy, *Proceedings of the Third International ACM SIGSPATIAL Workshop on HealthGIS (HealthGIS'14)*, 10 pages, TX, USA, 2014 (Best Paper Award).

Ahmad Qamar, Imad Afyouni, Mohamed Abdur Rahman, Faizan Ur. Rehman, Hossain, D., Saleh Basalamah, Ahmed Lbath. A GIS-based Serious Game Interface for Therapy Monitoring, *Proceedings of the 22nd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, 4 pages, TX, USA, 2014 (Best Demo Award).

Ahmad Qamar, Imad Afyouni, Faizan Ur. Rehman, Delwar Hossain, Asad Toonsi, Mohamed Abdur Rahman, Saleh Basalamah. A Multimedia E-Health Framework Towards An Interactive And Non-Invasive Therapy Monitoring Environment, *Proceedings of the The 22nd ACM International Conference on Multimedia (ACM MM)*, pages 745-746, FL, USA, 2014.

Faizan Ur. Rehman, Ahmed Lbath, Mohamed Abdur Rahman, Saleh Basalamah, Imad Afyouni, Akhlaq Ahmad, S. Osama Hussain. Toward Dynamic Path Recommender System Based on Social Network Data, *Proceedings of the 7th ACM SIGSPATIAL International Workshop on Computational Transportation Science (IWCTS)*, 6 pages, TX, USA, 2014.

Akhlaq Ahmad, Mohamed Abdur Rahman, Faizan Ur. Rehman, Ahmed Lbath, Imad Afyouni, Saleh Basalamah, Abdelmajid Khelil, S. Osama Hussain, Bilal Sadiq, Mohamed R. Wahiddin. A Framework for Crowd-Sourced Data Collection and Context-Aware Services in Hajj and Umrah, *Proceedings of the 11th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA' 2014)*, 8 pages, Qatar, 2014.

Akhlaq Ahmad, Mohamed Abdur Rahman, Faizan Ur. Rehman, Imad Afyouni, Saleh Basalamah, Mohamed R. Wahiddin. Towards a Mobile and Context-Aware Framework from Crowdsourced Data, *Proceedings of the IEEE International Conference on Information and Communication Technology For The Muslims World (ICT4M)*, 6 pages, Malaysia, 2014 (Best Paper Award).

Imad Afyouni, Cyril Ray, Sergio Ilarri, Christophe Claramunt, Algorithms for Continuous Location-Dependent and Context-Aware Queries in Indoor Environments, *Proceedings of the 20th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems,* pages 329-338, CA, USA, 2012.

Imad Afyouni, Cyril Ray, Christophe Claramunt, A Fine-grained Context-dependent Model for Indoor Spaces, In *Proceedings of the 2nd ACM SIGSPATIAL International Workshop on Indoor Spatial Awareness (ISA 2010)*, pages 33- 38, San Jose, CA, USA, 2010

National Conferences

Imad Afyouni, Cyril Ray, Sergio Ilarri, Christophe Claramunt, Un Modèle de Données pour les Requêtes Sensibles au Contexte dans les Environnements Indoor, *Actes des Huitièmes Journées Francophones Mobilité et Ubiquité (UBIMOB)*, Cépaduès, pages 23-33, 2012.

Communications (with papers)

Imad Afyouni, Cyril Ray, Christophe Claramunt, Knowledge Representation and Management in Indoor Mobile Environments, *ERCIM News No. 93, Special Theme : Mobile Computing*, 2013.

Imad Afyouni. GIS Technology Innovation Center at Umm Al-Qura University (UQU) : TAMREEN And HajjNUmra Projects. Keynote in the Esri Middle East and Africa User Conference (MEAUC), Kuwait, 2014.

Imad Afyouni, Context-Aware Processing of Continuous Location-Dependent Queries in Indoor Environments, *COST MOVE Workshop*, Delft - Netherlands - STSM Session, 2 pages, March 2012.

Research Reports

Imad Afyouni, Scaling Byzantine Fault Tolerant protocols To WAN, Master thesis, INRIA Rhône-Alpes, 47 pages, June 2009.

Invited Seminars

UAE

Knowledge Summit 2017 in Dubai. Presented my project for building game-based physiotherapy solutions for individuals with motor disabilities at the World Trade Center, November 2017.

UAE

UAE Innovation Month in Sharjah. Delivered a talk on game-based physiotherapy solutions at the SCASS Center, February 2018.

Ireland

Knowledge Representation and Management in Indoor Mobile Environments - IBM Research - Ireland, December 2013.

Serbia

Context-Aware Processing of Continuous Location-Dependent Queries in Indoor Environments - University of Niš - Serbia, May 2012.

Spain

A fine-Grained Spatial Data Model for Indoor Context-Aware Navigation Systems, University of Zaragoza - Spain, September 2011.

Canada

Indoor Space Modelling, Mobility, and Positioning in Ubiquitous Information Systems, *CQFD Workshop*, Calgary - Canada, June 2010.