

1. BASIC INFORMATION

1.1. Personal details and contact information

Name: Huber Flores
Place of birth: Guatemala, Guatemala City.
Nationality: Guatemalan.
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Homepage: <http://huberflores.com/>

Google Scholar: <https://scholar.google.com/citations?user=M9gkFKUAAA&hl=es&oi=ao>
h-index = 15, i10-index = 15
Citation count = 598 (10.09.2018)

Researcher ID: <https://orcid.org/0000-0003-4551-629X>
CV date: 10/09/2018

Language skills

- Spanish Mother tongue
- English Excellent (speaking, writing and reading)
- Estonian Intermediate (reading and writing)
- Finnish Basic (reading)
- Japanese Basic (reading and writing)

1.2. Titles appointed

Title: Docent (affiliated professor)
- University of Helsinki, Finland

Appointed: October 2018

1.3. Academic degrees

Degree: PhD in Computer Science
- University of Tartu, Estonia
- The Hong Kong University of Science and Technology (PhD visiting student)
Thesis: *Service-oriented and Evidence-aware Mobile Cloud Computing*

Period: 2011- 2015

Degree: MSc in Software Engineering
(Jointly university program),
- University of Tartu, Estonia
- Tallinn University of Technology, Estonia
Thesis: *MCM: Mobile Cloud Middleware*

Period: 2009- 2011

Degree: BEng in Computer Science
(1st graduated from his class)
- University of San Carlos of Guatemala, Guatemala.
Thesis: *Ubiquitous Collaborative Learning*

Period: 2003- 2008

1.4. Current position

January 2017 – Date

Academy of Finland and Faculty Post-doctoral Researcher

- University of Helsinki, Finland.

1.5. Previous experience

November 2015 – December 2016

Post-doctoral researcher

University of Oulu, Finland.

August 2011 – October 2015

Research assistant

University of Tartu, Estonia.

October 2012 – November 2013

Software developer & junior researcher

FP7 REMICS Consortium – University of Tartu
Tartu, Estonia

September 2010 – August 2011

Software developer & junior researcher

ELIKO (Competence Center in Electronics, Information and Communication Technologies)
Tallinn, Estonia

January 2010 – August 2010

Software developer & junior researcher

STACC (Software Technology and Application Competence Center)
Tallinn, Estonia

1.6. Short background

Huber Flores is an Academy of Finland Postdoctoral Researcher working in the Department of Computer Science at the University of Helsinki, Finland. In 2015, he obtained with honors his PhD in computer science from the Faculty of Mathematics and Computer Science, University of Tartu, Estonia. His PhD dissertation is titled “*Evidence-aware and Service-oriented Mobile Cloud Computing*”. He has been awarded several times due to his excellent ideas and research skills. Among his multiple awards, we can mention the Nokia Jorma Ollila Award (2018) given by the Nokia Foundation to support outstanding research in Finland, the (twice) Tiger University Scholarship award (2012, 2013) that is given to the top 5 students across all the Estonian Universities. The (twice) young scientist award for international knowledge exchange (2011, 2012) given by the Archimedes Estonian Foundation in collaboration with the Estonian Ministry of Education and Research. He also has been awarded with a SIGMOBILE student travel grant for presenting his research proposals at MobiSys 2013. He was also awarded with many personal mobility scholarships from doctoral Estonian school (IKTDK) and University of Tartu that allow him to establish fruitful and long-term collaborations with top scientist in his field from Finland and China. Dr. Flores is also active member of ACM (SIGMOBILE) and IEEE societies. His major research interests include computational offloading, social-aware device to device systems and applications, and mobile cloud computing. He consistently publishes at top-ranked conferences, such as Ubicomp/IMWUT, ICDCS, CHI, PerCom, MobiSys; and journals such as IEEE Communications, IEEE Transactions on Mobile Computing, Pervasive and Mobile Computing, and Journal of Systems and Software. He has served as organizer and committee member of multiple mobile com-

puting and networking venues, which includes CHANTS@MobiCom, HotPost@INFOCOM, IPDPS Workshops, Student Workshop@CoNext and PerCrowd@PerCom. He also has participated as guest editor in special issues in journals, such as IEEE Internet of Things Journal. In particular, Dr. Flores is one of the main chairs of PerCrowd, which is a specific forum where researchers and industry practitioners have shared new innovative ideas about multi-device computing.

1.7. Other technical skills

- **Operating system:** Any Linux-based OS (preferable Debian distributions)
- **Programming Languages:** Java, Python, C, C++, PHP, Javascript, Erlang, Clojure
- **Frameworks:** Maven, SVN, Git, Heroku, Jenkins, Selenium, Gradle, Amazon AWS.
- **Other environments:** R, MathLab, Latex

2. RESEARCH AND SCIENTIFIC ACTIVITIES

2.1. Significant publications (5 most significant)

As the **lead author** of each of my most important publications, I contributed with the realization of the idea, its implementation and experimentation. Moreover, I played a significant role in the writing process of each article.

Impact: in terms of citations, my most significant publication (#1) has attracted around 90 citations in about 3 years. Similarly, publication (#2) has attracted over 60 in 3 years.

1. **[IEEE COMMAG] H. Flores, P. Hui, S. Tarkoma, Y. Li, S. N. Srirama, R. Buyya:** [Mobile Code Offloading: From Concept to Practice and Beyond](#), IEEE Communications Magazine, volume 53, pages 80-88, 2015, [doi:10.1109/MCOM.2015.7060486](#)
 - **Relevancy:** Explores the adoption of code offloading in existing architectures
2. **[JSS] H. Flores, S. N. Srirama:** [Mobile Cloud Middleware](#), Journal of Systems and Software (Elsevier), volume 92, pages 82-94, 2014, [doi:10.1016/j.jss.2013.09.012](#)
 - **Relevancy:** Investigates the programmability of cloud resources from mobile devices and migration of tasks from mobiles to cloud in a service-oriented manner.
3. **[IEEE TMC] H. Flores, P. Hui, P. Nurmi, E. Lagerspetz, S. Tarkoma, J. Manner, V. Kostakos, Y. Li, X. Su:** [Evidence-aware Mobile Computational Offloading](#), IEEE Transactions on Mobile Computing, 2017, [doi:10.1109/TMC.2017.2777491](#)
 - **Relevancy:** Optimizes the decision to offload to cloud from mobiles by introducing community support to quantify the offloading context.
4. **[PMC] H. Flores, R. Sharma, D. Ferreira, V. Kostakos, J. Manner, S. Tarkoma, P. Hui, Y. Li:** [Social-aware Hybrid Mobile Offloading](#), Pervasive and Mobile Computing Journal (Elsevier), 2016, [doi:10.1016/j.pmcj.2016.09.014](#)
 - **Relevancy:** Investigates a device to device system for computational offloading that users can rely on for extending their battery life. Users have to pay with a digital currency, e.g. bitcoin, for using the devices of other users.

5. [ICDCS] **H. Flores**, X. Su, V. Kostakos, J. Riecki, E. Lagerspetz, S. Tarkoma, P. Hui, Y. Li, J. Manner: [Modeling Mobile Code Acceleration in the Cloud](#), In Proceedings of the Annual IEEE International Conference on Distributed Computing Systems (ICDCS 2017), Atlanta, GA, USA, June 5-8, 2017. (**Acceptance rate 16.9%**)
 - **Relevancy:** Investigates the perception of users towards using the cloud to accelerate the performance of mobile applications.

2.2. Research funding

Summary: I have obtained the prestigious postdoctoral personal grant from the Academy of Finland (2018-2021) I also have obtained the competitive postdoctoral fellowship from the Faculty of Science to conduct research at Kumpula Campus (2017-2020).

1. **Grant 1: Postdoctoral grant (Academy of Finland, September call 2017):** Research grant for Project “*MAYA: A Social-aware Utility MarketPlace for Self-organizing Computing at the Edge*” Funding period: 2018-2021. *Application selected from 260 candidates (14% acceptance rate)*
2. **Grant 2: Postdoctoral grant (University of Helsinki, Faculty call 2016):** Research grant for project “Social-aware Cross Device Sensing for Mobile Application Diffusion” to be conducted at Kumpula Science Campus (2+1 years), funding period: 2017 – 2020. *Application selected from 228 candidates.*

2.3. Research assessments and awards

- Nokia Jorma Ollila Award (2018)
- [Dora 6 grant / students' semester abroad](#), Archimedes Foundation in Collaboration with the Estonian Ministry of Education and Research (2014)
- [ACM SIGMOBILE Student Travel Grant](#), the 11th International Conference on Mobile System, Applications and Services (MobiSys 2013)
- IKTDK (Info- ja kommunikatsioonitehnoloogia doktorikool) doctoral school stipend 2013.
- *(2 years in a row)* Young Researcher Award - Tiigriülikooli vastus stipendiumitaotlusele/[Tiger University Scholarship](#) (2012/2013) and (2013/2014)
 - *This competition involves all Estonian Universities. The stipend is given just to the five top young researchers from the overall country.*
- [European Social Fund's Doctoral Studies and Internationalisation Programme DoRa](#) (2011/2015)
- *(2 times)* Participation of Young Scientists in International Knowledge Exchange ([EST Dora 8 Scholarship](#)), Archimedes Foundation in collaboration with the Estonian Ministry of Education and Research (2011 - 2012)
- [Baltic Summer School Stipend](#), German Academic Exchange Service (DAAD), University of Rostock/Germany and Kaunas University of Technology/Lithuania (2010)
- [Software Engineering Fellowship](#), Institute of Mathematics and Computer Science, University of Tartu (2009/2011)

2.4. Activities in the academic community

2.4.1. Conferences and workshops organization

- **PerCrowd 2019:** 2nd International Workshop on Context-Awareness for Multi-Device Pervasive and Mobile Computing (in conjunction with PerCom 2019) - **Chair**
- **SMC 2018:** Special track on Intelligent Internet of Things – **Chair**

- **PerCrowd 2018:** 1st International Workshop on Context-Awareness for Multi-Device Pervasive and Mobile Computing (in conjunction with PerCom 2018) - **Chair**
- **CHANTS 2017:** 12th Workshop on Challenged Networks (co-located with MobiCom 2017) - **Publicity chair**
- **SMC 2017:** Special track on Intelligent Internet of Things - **Chair**
- **IEEE Internet of Things Journal (IoT-J):** Special issue on “Opportunistic and Collaborative Multi-device Systems and Applications in the Internet of Things” - **Guest editor**

2.4.2. Other professional and technical committees

- **VTC2018-Fall:** IEEE 88th Vehicular Technology Conference - **TPC member**
- **HotPOST 2018:** 10th International Workshop on Hot Topics in Pervasive Mobile and Online Social Networking (co-located with INFOCOM 2018) – **TPC member**
- **Student Workshop** (co-located with ACM CoNEXT 2017) - **TPC member**
- **IPDPS 2019:** Workshops - **TPC member**
- **IEEE Journal of Selected Areas on Communications (JSAC):** Special issue on “Artificial Intelligence and Machine Learning for Networking and Communications” - **TPC member**

2.4.3. Recognized reviewer

- IEEE Transactions on Mobile Computing, IEEE Transactions on Parallel and Distributed Systems, Computers and Electrical Engineering (Elsevier), Transactions on Emerging Telecommunications Technologies (Wiley), Simulation Modelling Practice and Theory (Elsevier), Software: Practice and Experience (Wiley), Journal of Systems and Software (Elsevier), Journal of Network and Computer Applications (Elsevier), IEEE Transactions on Cloud Computing, Wireless Networks (Springer), Pervasive and Mobile Computing Journal (Elsevier), Computer Communications Journal (Elsevier), Computer Networks (Elsevier), International Journal of Human-Computer Studies (Elsevier), IEEE Communications Magazine, IEEE Access, IEEE Communication Letters, Concurrency and Computation: Practice and Experience (Wiley), IEEE Transactions on Service Computing, IEEE Transactions on Network and Service Management, IEEE Internet of Things Journal, IEEE Network

2.5. Research collaborations

I conduct research in mobile, pervasive and cloud computing. Over the years, I have the privileged to established long term collaborations worldwide.

Internationally: As former member of SymLab, I also continue working with Prof. Pan Hui (The Hong Kong University of Science and Technology. Other collaborators I also have the pleasure to work with are Prof. Vassilis Kostakos (The University of Melbourne, Australia), Prof. Yong Li (Tsinghua University, China), Prof. Petteri Nurmi (Lancaster University, UK; and University of Helsinki, Finland), Dr. Aaron Di Ying (TU Delft, Netherlands), Prof. Oresti Banos (University of Twente, Netherlands), Prof. Sokol Kosta (Aalborg University, Denmark), Prof. Rajkumar Buyya (The University of Melbourne, Australia) and Dr. Rajesh Sharma (University of Tartu, Estonia). These collaborations have contributed towards improving my research skills as an independent researcher.

Nationally: I work As part of the NODES research programme that is led by Prof. Sasu Tarkoma. In addition, as former member of UBICOMP (Center of Ubiquitous Computing) at University of Oulu, Finland. I continue working closely with Prof. Jukka Riekkki, Dr. Xiang Su, Dr. Denzil Ferreira and Dr. Simo Hosio. These collaborators have been important to develop proposals for national research projects. Some of these results are already published in top venues (see 2.1, publications #4 and #5)

2.6. Active participation in other scientific events

Since 2013, we have engaged with most of my collaborators in annual workshop venues with the goal of sharing latest ideas and developments in our field. As a result, the Finland-China-Germany (Former name HKUST-Helsinki-China) Workshop has been taken place in the last years. The workshop also invites new participants each year with the goal of extending our research network.

Workshop page 2016 <https://www.cs.helsinki.fi/group/close/edge-computing-2016/index.html>

Workshop page 2017 <https://edge17.cm.in.tum.de/speakers.html>

Workshop page 2018 <http://idatatongji.com/fcg2018/index.html>

These workshops have led me to participate to other venues, such as Dagstuhl Seminar on the Internet of People, coordinated by Dr. Andrea Passarella (CNR – Pisa, IT), Prof. Jörg Ott (TU München, Germany) and Prof. Peter Reichl (Universität Wien, AT)

<https://www.dagstuhl.de/en/program/calendar/semhp/?semnr=17412>

2.7. Scientific and social impact of research

In terms of scientific impact, my research has contributed in the development of mobile cloud computing, specially, it has contributed towards the adoption of mobile code offloading in smart devices. Relevant publications on the topic have been published in top venues and journals, such as IEEE Transactions on Mobile Computing, ICDCS, IEEE Communications Magazine, MobiSys, Pervasive and Mobile Computing Journal and Journal of Systems and Software. In addition, I also have been actively establishing new research directions in emerging topics and increasing my research network. I am exploring new research lines in multi-device systems and applications, and passive data analysis techniques for crowdsensing. As a result of this, I am organizing PerCrowd (International Workshop on Context-Awareness for Multi-Device Pervasive and Mobile Computing) twice in conjunction with PerCom, and propose a special issue in those lines in the IEEE Internet of Things Journal. Most of my work is open and prototypes can be accessed by anyone via GitHub (<https://github.com/huberflores>)

The societal impact of my research can be far-reaching and is not limited to my main research. I have actively participated in FP7 EU Project REMICS (Reuse and Migration of legacy applications to Interoperable Cloud Services). In the context of the project, I helped to developed several tools as open source that can be used by anyone to migrate legacy applications to cloud.

2.8. Visions and personal development plans

As part of the Academy of Finland, I have a full agenda for the coming 3 years. My proposal MAYA will be developed during this time. “MAYA: A Social-aware Utility Market Place for Self-organizing Computing at the Edge” I will develop this project in my current institution (University of Helsinki, Finland). During the second year, I am planning to extend the impact of the project by setting up test beds with my collaborators in The University of Melbourne, Australia. Lastly, in the third year, I am also planning to improve further the theoretical aspects of my project by validating my ideas with support of my collaborators in Tsinghua University, China.

2.9. Other qualifications

It's my pleasure to be part of the following associations and research communities

- **Memberships:** *IEEE member, ACM member (SIGMOBILE),* Guatemalan Association of Engineers, Member No.9691.

3. TEACHING AND SUPERVISION

3.1. Teaching philosophy

Teaching: Information is just transformed into knowledge when concepts and theory are understood through practical experiences. Thus, I deliver lectures with practical uses cases in which students can relate how theory is applied in reality.

Continuous improvement of teaching skills: In my lecture, I apply mostly a Socratic method, in which I encourage participation and critical discussion about topics. I keep my students motivated by providing them with successful examples about how concepts and principles are helping to develop latest products in the market. I keep up to date of latest technologies and finding in my field through newsletters, e.g., MIT and Harvard reviews. Moreover, since I attend scientific conferences regularly, I also tune my lecture material with latest finding and challenges that can work as motivation for students. I am also improving my teaching skills by following latest courses in MIT OpenCourseWare, Coursera, MOOCs provided by different universities and pedagogical courses arranged by the University of Helsinki.

3.2. Experience in undergraduate and postgraduate teaching and supervision

3.2.1. Teaching experience

My main teaching areas are mobile networking and distributed systems. More recently, I have become main lecture of several courses, which I also have proposed to the faculty. In addition, thanks to my expertise in mobile computing, networking and cloud computing, I also have been invited as a guest lecture to different universities over the years.

Lecturer

- **2018** / Department of Computer Science, University of Helsinki, Finland. **(Course: Distributed Systems) – Together with Prof. Pan Hui**

I am teaching the distributed systems course which is a core course in the master curricula of University of Helsinki. The course focuses on fundamental concepts and principles of distributed systems. <https://courses.helsinki.fi/en/csm13001/124911246>

- **2017** / Department of Computer Science, University of Helsinki, Finland. **(Course: Cloud-based Mobile Networking Seminar)**

I proposed the cloud-based mobile networking seminar for the second semester of 2017 at University of Helsinki. I was in coordination of all the activities of the course. The focus of the course was on exploring techniques for merging mobile and cloud computing. This course was taught to students at master level. <https://courses.helsinki.fi/en/csm13181/120661886>

- **2015-2016**/ Department of Computer Science, University of Oulu, Finland. **(Courses: Applied computing project)**

I delivered lectures about best software engineering practices to develop projects using control version system tools and continuous integration.

Teaching assistant and lecture

- **2010-2015**/ Institute of Computer Science, University of Tartu, Estonia. **(Courses: Mobile Application Development, Mobile and Cloud Seminar)**

My main tasks were to develop projects for students and to give lectures about software engineering for

mobile devices, specifically for Android OS.

- **2006-2007** / Department of Mathematics and Department of Computer Science, University of San Carlos of Guatemala. **(Courses: Discrete mathematics, differential calculus)**

My main tasks were to grade exams, homework and develop exercises for students. I also was in charge to coordinate and give practical sessions to students.

- **2006-2007** / Department of Mathematics and Department of Computer Science, University of San Carlos of Guatemala. **(Computer networks)**

I also was teaching assistant for the networking course. I was in charge to grade projects and deliver lectures.

3.3. Visiting lectures to other universities

I have been invited as guest lecture to different universities.

1. March 2017 - Guest Lecture at University of Oulu, Finland – Distributed Systems course organized by Dr. Xiang Su. Presentation: “Large-scale offloading in the Internet of Things”
2. April 2018 – Guest Lecture at Lancaster University, UK – Pervasive Data Science course organized by Dr. Petteri Nurmi. Presentation: “Crowd-based Mobile Data Modelling”

3.3.1. Supervision experience

I have supervised multiple theses in different universities. I have supervised 10 bachelor theses and 4 master theses. Moreover, I am also acting as co-supervisor of 2 doctoral theses which are in progress. My main role in supervision of a thesis is helping in the realization of the idea, assessing the work and maintaining the quality of the research methods. As my own rule for supervision, each thesis is released along with the deliverables. This includes experiments and open source code in GitHub. A summary of students along with the topic is described below.

Doctoral students

University of Helsinki

1. Agustin Zuniga (Understanding data fusion for large-scale crowd sensed datasets, 2018 – Date) Supervised together with Prof. Petteri Nurmi
2. Abhishek Kumar (Privacy in social pervasive systems, 2017 – Date) Supervised together with Prof. Pan Hui

Master students

University of Helsinki

1. Agustin Zuniga (Analyzing the Impact of Performance on Apps Retention, 2018) Supervised together with Prof. Petteri Nurmi

University of Tartu

1. Lukman Adekunle (Predicting Wireless Sensor Readings with Neural Network, 2014)
2. Kaarel Hanson (Context Sensor Data on Demand for Mobile Users Supported by XMPP, 2012)
3. Oleg Petshjonkin (Migration of Native Android to HTML5, 2012)

Bachelor students

University of Tartu

1. Henry Ots (Device-to-Device (D2D) Coupon Dissemination, 2017)
2. Enno Eller (Simplifying Mobile Social Media Authentication on Android, 2016)
3. Mihkel Visnapuu (D2D Computational Offloading, 2016)
4. Jaan Tohver (Gesture Ads for Smartphone Apps, 2016)
5. Kristiina Ritso (Scaling virtualized Smartphones Images in the Cloud, 2015)
6. Taavi Ilmjarv (Detecting User Reading Behaviour Using Smartphone Sensors, 2015)
7. Jakob Mass (Device to Device Automatic Pairing, 2014)
8. Lauris Kruusamae (Energy-aware Sensor Data Gathering, 2014)
9. Martti Marran (Generating Indoor Maps from Mobility Traces, 2013)
10. Tanel Tahepold (Context-aware Games in HTML5 with Microcontrollers, 2012)

3.4. Pedagogical approach and training

During my teaching assistant period, I have completed successfully the pedagogical training for lectures provided by the University of Tartu. This includes introduction to Moodle (<http://moodle.ut.ee>), and proprietary video software to record lectures (<http://www.uttv.ee/esileht>). In addition, I have been instructed in other like Moodle alternatives, such as OPTIMA (<https://optima.oulu.fi/>), which is course management web tool used at the University of Oulu. Regarding the design and development of teaching material, I always try to keep Wiki environments in which students can interact by adding content and asking questions. More recently, I also have been introduced to MOOCs for providing online video lecturing.

3.5. Published study materials and use of educational technology

In the Cloud-based Mobile Networking Seminar, I have created all the relevant material and exercises for teaching concepts and principles that are accompanied by practical work. The main focus of the course was on analyzing networking data on the cloud with data analytics tools; specifically we rely on the R environment. Unlike traditional seminar methodologies imparted in the University, I changed the focus on the seminar by providing an interactive forum, in which students can show their incremental advances regarding data analysis with R. Basically, I provided one big dataset (collected from real mobile operator settings) about mobile networking traces, and I asked the students to analyze it based on the principles that I taught in the lectures. Students then had several opportunities to demonstrate what they have learned and compared results with others. The feedback provided at the end was very positive, and I am looking forward applying similar methodology to my incoming new courses.

3.6. Strengths, development challenges and visions of one's teaching

Currently, I have developed teaching material that can be applied for courses such as mobile networking, Internet of Things and Distributed Systems. I am planning to use my current knowledge in MOOCs for providing my current material online for students. In addition, I also want to introduce my current lines of research in my courses. This includes multi-device systems and applications, and passive data analysis in crowd sensed data.

Personal references

If you want to know more about me, please feel free to contact any of my personal references. They will be happy to provide you more information.

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