ASHIK KHATRI

Phone: (281) 818 4567   **Email**: ashikrk@gmail.com

EDUCATION

Ph.D. Expected graduation: August 2018, Department of Computer Science, University of Houston, TX; **GPA: 3.82**
- Advisor: Dr. Ioannis Pavlidis

M.S. May 2015, Department of Computer Science, University of Houston, TX; **GPA: 3.92**
- Advisor: Dr. Ioannis Pavlidis

B.S. May 2013, Department of Computer Science, University of Houston, TX; Major **GPA: 3.51**
- Honors: magna cum laude

RESEARCH INTERESTS

- Affective Computing
- Human-Computer Interaction (HCI)
- User Studies
- Software Design/Engineering

PUBLICATIONS

[1]. S. Taamneh, P. Tsiamyrtzis, M. Dcosta, P. Buddharaju, **A. Khatri**, M. Manser, T. Ferris, R. Wunderlich, and I. Pavlidis. A multimodal dataset for various forms of distracted driving, *Scientific Data*. 10.1038/sdata.2017.110, vol. 4, August 15, 2017. [Impact Factor: 4.852]

[2]. D. Majeti, S. Taamneh, M. Ugur, **A. Khatri**, and I. Pavlidis. Insights into Computer Science Academic Careers. *Science of Team Science (SciTS) 2016 Conference*, May 16-19, 2016, Phoenix, Arizona

[3]. **A. Khatri**, D. Shastri, P. Tsiamyrtzis, I. Uyanik, E. Akleman, and I. Pavlidis. Effects of Simple Personalized Goals on the Usage of Physical Activity App. *CHI'16 Extended Abstracts on Human Factors in Computing Systems*, May 7-12, 2016, San Jose, California. [Acceptance Rate: 43.4%] [Conference Rank: A1]

[4]. A. Turchaninova, **A. Khatri**, I. Uyanik, and I. Pavlidis. Role Model in Human Physical Activity, *Proceedings of the Wireless Health 2015 on National Institutes of Health*, October 14-16, 2015. Bethesda, Maryland

[5]. I. Uyanik, **A. Khatri**, D. Majeti, M. Ugur, D. Shastri, and I. Pavlidis, Using Accelerometer data to estimate surface incline and its walking app potential, *CHI'15 Extended Abstracts on Human Factors in Computing Systems*, April 18-23, 2015. Seoul, South Korea. [Acceptance Rate: 45%] [Conference Rank: A1]

[6]. I. Uyanik, **A. Khatri**, P. Tsiamyrtzis and I. Pavlidis, Design and Usage of an Ozone Mapping App, *Proceedings of the Wireless Health 2014 on National Institutes of Health*, pp. 1-7, October 29-31, 2014. Bethesda, Maryland. [Acceptance Rate: 25%]

RESEARCH PROJECTS

iBurnCalorie – A goal based approach
- iBurnCalorie, a health & fitness application of Computational Physiology Lab, has been revamped from the ground up with a new concept. This concept allows the user to set a caloric goal they should achieve based on their BMR (Basal metabolic rate) and their daily food consumption. We provide a normalized visualization of how the user fares against the median population, in hopes that they will stay motivated to stay above the median population and hit their daily target goal.
- My task is to perform comparative analysis of iBurnCalorie with two popular walking applications on the iTunes Appstores. Our newly redesigned app will be compared by the top rated apps whose goal is to present as much information to the user as possible. Our hypothesis is that simple, minimal yet essential information is the key to keep a user engaged in the long run.
- This work produced the following papers:
  - Role Model in Human Physical Activity
  - Effects of Simple Personalized Goals on the Usage of Physical Activity App

Surface Incline Study:

- Current crop of walking applications are usually accurate as long as one is on level ground. In cities with lot of hills, like San Francisco, the accuracy of these applications is very poor. In our pilot study, we use accelerometer embedded inside iPhone to compute the surface incline. This study has been published in CHI'15 conference under the title 'Using Accelerometer data to estimate surface incline and its walking app potential'.

OzoneMap

- With the proliferation of environmental sensor networks, real-time, quantitative, and localized pollutant information has become available for a few big cities. Several mobile apps have been developed to bring this information to the user 24/7. In contradistinction to conventional weather reporting systems that provide a qualitative and static description of pollutant levels for an entire metropolitan area, these new apps dynamically relay quantitative pollutant measurements at high spatial resolution. No design methodology has been rationalized for pollutant apps thus far. And, although such apps have potential impact to public health, their actual user base and usage have not been investigated. We have fielded an ozone mapping app for the Houston area. Ozone is a harmful environmental pollutant developing under certain conditions in major metropolitan centers. We use this as a case study to put forward a design philosophy for pollution apps in general. We also analyze the app's user portrait and her/his interaction patterns. This study has been published in Wireless Health conference under the title 'Design and Usage of an Ozone Mapping App'.

TEACHING EXPERIENCE

Ubiquitous Computing (COSC 6355 in Computer Science, University of Houston): Teach lectures; create course material (Quizzes and Assignments); grading. (Fall 2014, 2015, 2016, 2017). http://cpl.uh.edu/courses/ubicomp/

Operating Systems (COSC 4330/6310 in Computer Science, University of Houston): Help students with course, homeworks and assignments, grade homework and examinations, and conducted first intro lecture with another TA, in absence of Professor (Spring 2015).

Data Structures (COSC 2320 in Computer Science, University of Houston): Introducing data structures and algorithms in C++ and Java, assist students, and grade homework and examinations (Spring 2013).

WORK EXPERIENCE

Software Engineer (Intern)   **NASA, Johnson Space Center**   **Summer 2015, 2016, 2017**

- Developed reports in SQL for training management system.
- Designed and implemented web applications with C# and .Net.
- Implemented web analytics for training site to collect basic usage data.
- Setup automated unit testing using NUnit, and Selenium.
- Designed a Cross-Platform (iOS, Windows, and Android) tablet app using Xamarin Forms.

TECHNICAL PROJECTS

S-Interface

- S-Interface has been built as a modular system in C#. These modules are called plug-ins and need to conform to certain programming guidelines that are spelled out in the Plug-in Tutorial. Functionally speaking, the plug-ins are of two major varieties: (a) sensor channels, and (b) algorithm implementations. S- Interface can acquire in real-time multiple sensor channels and upload the data to online cloud systems such as Google Drive or Amazon AWS. This software was used to gather dataset which was part of the 2017 *Scientific Data* publication titled: A multimodal dataset for various forms of distracted driving
- **Task**: Upgrade and maintain plug-ins and compatibility with external sensors and APIs
- **Used**: C#.
- **URL**: http://cpl.uh.edu/software/s-interface/

Fitness – Benchmark App (iOS app under beta testing)

- The app allows teenagers to perform fitness benchmarks and compare their progress with other users of the app. Each benchmark consists of four tasks: Dexterity, Fast walk, Run, and pushups.

- o Dexterity: Test motor function (the ability to use and control muscles and movements, is integrally related to daily functioning and quality of life.)
  - o Walk/Run: User is tasked to run/walk fast for a fixed amount of time. The longer the distance covered the better.
  - o Push-up: A measure of upper-body strength. The more push-ups that can be done, the healthier and stronger the person is.
- **Task**: Design and implement the app
- **Used**: Swift, Objective-C, PHP, MySQL, JSON, XCode.

iBurnCalorie
- The "I Burn Calorie" app continuously reads the iPhone's accelerometer and GPS values. Based on these values, it provides accurate Calorie and/or mileage estimation no matter where you attach the iPhone (pocket, waist, arm, or another part of your body).
- **Task:** Design, implement, update the application and analyze data for research.
- **Used:** Objective C, Swift, HealthKit, XCode, MySQL, Groovy, PHP, JSON, XML
- **Project page:** http://iburncalorie.times.uh.edu/

Real Time Ozone Map Application
- The easy to interpret ozone visualization, based on monitored values from the Houston region's 40+ ozone monitors, allows users to check when and where ozone has reached unhealthy levels in real-time. In fact, the users have two visualization options: In the default visualization option the ozone event is treated similar to a storm event: if no ozone is present then the map is clear. In the alternative visualization option if no ozone is present the map is painted green.
- **Task:** Design and implement application and publish an article.
- **Used:** Java, Eclipse, IntelliJ, Gradle
- **iTunes:** https://itunes.apple.com/us/app/ozonemap/id579938656?mt=8
- **Google Play:** https://play.google.com/store/apps/details?id=edu.uh.cpl&hl=en

Reacher Mobile Game
- A casual mobile game Reacher developed and deployed on iOS, Android and Windows Phone stores. My primary focus was level design.
- **Task:** Designed all 30 levels of the game. Worked on Game Pause and restart transitions, touch controls, and tutorial scenes.
- **Used:** Unity2D, C#, Adobe Photoshop
- **iTunes:** https://itunes.apple.com/us/app/reacher/id871379973?mt=8
- **Android:** https://play.google.com/store/apps/details?id=com.arunchacko.reacher
- **Windows Phone:** https://www.microsoft.com/en-us/store/apps/reacher/9wzdncrdbnj0

Bubba: The Exorcist
- A 2D lane defense action shooter, loosely based on Plants vs. Zombies, in which the player must control the main character Bubba, to defend him from hordes of monsters.
- **Task:** Team Leader, Design and develop mechanics of the game. Produce reusable scripts to speed up game development. Manage deadlines and iterations.
- **Used:** Unity2D, C#.
- **iTunes**: https://itunes.apple.com/us/app/bubba-exorcist/id951629385?mt=8

iPad based testing framework, Research Experience Undergrads (2012), University of Houston
- **Task**: Develop a tablet based testing framework that would mock multi-format paper exam. Objective of the application was to simulate paper format as closely as possidble on the iPad and record all interactions that happen on the iPad.
- **Used**: HTML, CSS, JavaScript, PHP, MySQL, XCode, Objective C.

Tumster – A mobile app for foodies
- Introducing the best way to find food! Our simple layout gives you the option to search for the actual dish as opposed to the type of restaurant. Users can input a descriptive hash tag of the dish (example: #Cheesy #BBQ #FoodTruck #Healthy #Fried etc.) along with a straightforward budget and distance input to narrow down your selection. Once you find a dish you like simply click the navigation button and you will be on your way!
  Task: Project Manager, Lead Developer
  Used: Objective C, PHP, MySQL, JSON
  Project Link: http://tumster.com/

PROFILE LINKS

Computational Physiology Lab: http://cpl.uh.edu/people/ashik_khatri/
Linkedin: www.linkedin.com/in/ashikrk
Stackoverflow: http://stackoverflow.com/users/1748639
Github: https://github.com/CrashOverride90

SPOTLIGHT, AWARDS AND SCHOLARSHIPS

- Best Poster Award at the 2016 annual PhD poster showcase event held by Department of computer science, University of Houston. http://www.cs.uh.edu/people/awards/
- Best MS Student, Computer Science, University of Houston, 2015, http://www.cs.uh.edu/people/awards/
- Interview with The Daily Cougar, regarding the Android "OzoneMap" Application, March, 2013.
    - http://thedailycougar.com/2013/03/26/app-educates-on-ozone-levels/
    - http://goo.gl/cmnq6M
- 2nd best Poster during final Poster Competition at Research Experience for Undergrads (REU), University of Houston, Summer 2012
- Undergraduate Academic Excellence Scholarship, University of Houston, 2007.

TECHNICAL QUALIFICATIONS

- **Platforms**: Windows, Mac, Linux
- **Languages**: Java, C#, Python, R, Objective-C, Swift, JavaScript, PHP, HTML/CSS, SQL
- **Tools**: XCode, Intellij, Android Studio, Eclipse, Visual Studio, SVN, Git
- **Unit Testing Frameworks**: JUnit, Spock framework, XCTest—Xcode Testing Framework

RELEVANT COURSEWORK

Courses: iOS Programming, Software Design, Software Engineering, Programming Languages, Computer Architecture, Operating Systems, Data Structures, Advanced Ethics in Science (research methodology in biomedical, human, and technology studies), Statistics for Science, Machine Learning, Game Art and Animation, Game Development

REFERENCES

Dr. Ioannis Pavlidis

Eckhard Pfeiffer Professor,

Computational Physiology Laboratory, Director

University of Houston, Houston, TX 77204

Phone: 713-743-0101

E-mail: ipavlidis@uh.edu

Dr. Panagiotis Tsiamyrtzis

Professor,

Athens University of Economics & Business,

Athens, Greece

E-mail: pt@aueb.gr

Les Court

Instructional Designer,

NASA, Johnson Space Center

Phone: (281) 244-7131

E-mail: leslie.r.court@nasa.gov