

Ruhollah Shemirani

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RESEARCH INTERESTS	<ul style="list-style-type: none">◇ Bioinformatics◇ Machine Learning◇ Medical Data Mining◇ Population Genetics
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EDUCATION	<ul style="list-style-type: none">◇ Ph.D. Student in Computer Science Aug. 2014 – May 2019 (expected) Department of Computer Science University of Southern California, Los Angeles, United States SUPERVISOR: Jose-Luis Ambite◇ B.Sc. Degree in Computer Engineering/IT Engineering Sept. 2009 – June 2014 Department of Computer Engineering Sharif University of Technology, GPA: 18.06/20 Tehran, Iran
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SELECTED PUBLICATIONS	<ul style="list-style-type: none">◇ <i>Rapid detection of Identity-by-Descent tracts for mega-scale datasets</i> Ruhollah Shemirani, Gillian Belbin, Eimear Kenny, C.R. Gignoux, Jose-Luis Ambite. <i>To be submitted soon.</i>◇ <i>Using Supervised Learning Methods for Gene Selection in RNA-Seq Case-Control Studies</i> Stephane Wenric, Ruhollah Shemirani <i>Frontiers in genetics 9 (2018).</i>◇ <i>Ultra-Rapid Detection of Identity-By-Descent Tracts for Biobank-Scale Inference</i> Ruhollah Shemirani, Gillian Belbin, Eimear Kenny, C.R. Gignoux, Jose-Luis Ambite. Presented at <i>67th Annual Meeting of American Society of Human Genetics (ASHG'17).</i>◇ <i>SEALANT : Preventing Inter-Application Attacks in Android</i> Youn Kyu Lee, Ruhollah Shemirani, Jae young Bang, Arman Shahbazian, Gholamreza Safi, Nenad Medvidovic. (Technical Report)
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RESEARCH EXPERIENCE	<ul style="list-style-type: none">◇ Intelligent Systems Devison at Information Sciences Institue May 2016-Current Supervisor: Jose-Luis Ambite As a research assistant, I am always trying to find new ways to analyze large genetic/genomic datasets. I am currently working on iLASH, an ultra-rapid and scalable method to find Identity-By-Descent tracts among a vast number of individual DNA data. Dealing with problems of high-scale data analysis and optimization of algorithms are two of the main parts of this research.◇ 23andMe StatGen Team May 2018-Augsut 2018 Supervisor: Suyash S. Shringarpure As a research intern, I designed and implemented a fast and scalable IBD-mapping pipeline successfully. This was a chance for me to learn from some of the most prominent researchers in my field.◇ SoftArch Lab at USC. July 2014-May 2016 Supervisor: Nenad Medvidovic At SoftArch Lab, I worked on an integrated middleware for Internet of Things. I designed and implemented parts of a library to handle an event-based network of softwares, interacting on a range of heterogeneous devices. I also worked on event-based anomalies and security problems of Android operating system.
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- ◇ **SMART Lab** at Sharif university of technology. 2012-2014
Supervisor: Maziar Goudarzi
I designed and implemented a mobile tracking system for cars. Which is being commercially used right now.

SKILLS

- ◇ Programming: C, C#, C++, Python, Java, Shell, MATLAB.
- ◇ Embedded: Arduino, Intel XDK, Verilog HDL, MIPS Assembly.
- ◇ Parallel: MPI, Open MP, CUDA, Hadoop.
- ◇ Tools: Numpy, Scikit, Android Studio
- ◇ Web: HTML, JavaScript, CSS, Django, PHP, MySQL, Node.js(Express).
- ◇ Version Control: SVN,GIT.
- ◇ OS: Mac OS, Windows, Linux(Ubuntu).
- ◇ Languages: Persian (Native), English (Semi-Fluent).

WORK
EXPERIENCE

- ◇ **Mobile Software Designer and Developer** in the **Beep Company**, a Major VAS provider in Iran. Apart from developing mobile apps, I helped the company to establish a research and development division named XeeLabs.
- ◇ **Web Developer** in the **Meraat Organization, Innovation for Learning and Education**(2012).
- ◇ **R&D Staff** in the **Meraat Organization**(2012).
- ◇ **Web Developer** at **Arsh Software Designing Firm**(2011).

PROJECTS

- ◇ **iLASH (Fast detection of IBD in DNA)**: I have developed an ultra-rapid tool to find shared IBD tracts among big genetic databases. The results of my work have been presented at ASHG 2017 meeting. It is called iLASH and will be available to public for use shortly. This project took more than year to be developed by me.
- ◇ **Android Framework Tester**: I wrote a tester script to measure different aspects of a manipulated Android framework and compare it to original Android OS. This and other contributions of mine have resulted in SEALANT, an Android security framework.
- ◇ **DISC Middleware**: DISC-MW is an extensible middleware platform that enables efficient implementation, deployment, and execution of distributed, context-aware software systems in terms of their architectural elements: components, connectors, configurations, and events with the support of context-models.
- ◇ **Analysing, Designing & Implementation of Personal Tracking System**: A SAMT Lab project purchased by a Bank to track their mobile service staff around the country. It has been in use for the past 3 years.
- ◇ **Developing Main Portal for Meraat Organization** : Work Project. This website manages all the business functions of the organization, involving the educational programs and solutions offered to schools in Iran, in order to bring new technologies to schools and make their processes more efficient.

TEACHING
EXPERIENCE

- ◇ **Teaching Assistant** for the following courses in the University of Southern California.
 - **Software Engineering for Embedded Systems** (Fall 2015), **Software Architectures**(Spring 2015, Spring 2016), **Introduction to Programming**(Fall 2014) and **Information Integration on the Web**(Fall 2016).
- ◇ **Teaching Assistant** for Following Courses in Sharif University:

- **Web Programming Course** (Fall 2013), **Systems Analysis and Design course** (Spring 2013), **Computer Networks course** (Spring 2013, Fall 2013), **Operating Systems course** (Spring 2013), **Signals and Systems course** (Fall 2012, Fall 2012, Spring 2013), **Data Structures course**(Spring 2013) and **Computer Architecture course** (Spring 2012,Fall 2012)

HONORS AND AWARDS

- ◇ Admission to **University of Southern California**(2014) As a teaching assistant with full financial support.
- ◇ Admission to **Sharif University of Technology** (2009) Sharif University is the university of choice for the top ranking students attending the nationwide universities entrance exam (Konkour) which has more than 1 million participants each year.
- ◇ Ranked **1st** among **Sharif IT Engineering Students**(class 2009) In terms of cumulative GPA.
- ◇ Ranked **210th** in the nationwide university entrance exam(Konkour) which has more than 300,000 participants each year.
- ◇ Elected as Director of Computer Engineering Department **Student Scientific Chapter (SSC)**(2012). SSC is the student committee concerned with directing the department's extra-curriculum activities.
- ◇ Ranked **7th** in the nationwide entrance exam for Master's degree in Information Technology (2013) (Taken a Year in Advance).

ACTIVITIES

- ◇ **Elected Member** of the Computer Engineering Dept. **Student Scientific Chapter (SSC)** for three years(2011,2012,2013), SSC is the student committee concerned with directing the department extra-curriculum activities.
- ◇ **President** of the Computer Engineering Dept. **Student Scientific Chapter (SSC)** (2012)
- ◇ **Chief of Technical Staff** 11,12,13th ACM/ICPC Asia Region (2010-2013) I directed and managed a team to assemble, setup, and manage over 100 PC workstations and their network for the contest, many from individual components, on a very short timeframe (5 days). It proved to be a strong technical and management challenge requiring 24x7 attention and devotion.
- ◇ **Chief Of Staff**- Java Challenge(2011,2012). Competition for writing AI code in Java programming language to pass the game field and overcome other AIs.