

# Sonia Baee

Linklab (Olsson Hall - Second Floor), University of Virginia, Charlottesville, VA

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## Profile

I am a second-year Ph.D. student at the University of Virginia in the Department of System and Information Engineering working with Dr. Laura Barnes. In our research, we use a smartphone, mobile sensing technology, and the associated contextual data to deliver just-in-time prompts to individuals to promote right actions (emotion) for their situation. Currently, I am working on with different types of data such as social media, web-based questionnaire response, and Ecological Momentary Assessment (EMA) to figure out the person's behavior pattern. We are planning to use Artificial Intelligence (AI) and digital coaching to address idiosyncratic physical, behavioral and psychological processes of individual users to optimize utilization, compliance, efficacy, and maintenance. This will make it highly personalized

## Education

### University of Virginia

Charlottesville, Virginia

PHD IN SYSTEM AND INFORMATION ENGINEERING - ADVISOR: LAURA BARNES

August 2017 - Present

- Project: Conversational agent in mental health
- GPA: 3.98

### Amirkabir University of Technology

Tehran, Iran

M.S. IN COMPUTER SCIENCE - ADVISOR: S. MEHDI HASHEMI

2011 - 2013

- Thesis: Improve Patient's Satisfaction by using Electronic Medical Records and Building Management Systems (sensors)
- GPA: 18.26/20 (Thesis grade: 19.5/20)

### Amirkabir University of Technology

Tehran, Iran

B.S. IN COMPUTER SCIENCE - ADVISOR: S. MEHDI HASHEMI

2007 - 2011

- Thesis: A New Urban Train Boarding/Alighting Strategy Proposition Using Passengers Micro-Movement Modeling
- GPA: 18/20 (Thesis grade: 20/20)

## Experience

### Graduate Research Assistant

August 2017 - PRESENT

UNIVERSITY OF VIRGINIA

- Digital Coaching: how to use conversational agent to optimize utilization, compliance, efficacy, and maintenance of mental health program?
- Managing Anxiety: how does cognitive behavior modification change anxious person's behavior?
- Attrition: how to detect a participant is planning to leave the study at right time
- Mental-health framework: how to detect person's loneliness based on their text communication
- MindTrail project: Data analysis for finding patterns of user's behavior and response
- Emotion regulation: how anxious people regulate their emotion based on location and EMA

### Researcher

Sept 2015 - July 2017

KNOWLEDGE REPRESENTATION LAB - TEXAS TECH UNIVERSITY

- ALM: creating a compiler for modular action language

### Software Developer

2011 - 2014

ITS - AMIRKABIR UNIVERSITY OF TECHNOLOGY

- Business Intelligent: how to recommend the product to the user based on their history of orders
- Intelligent Parking: develop a system to show vacant spots in parking for reservation

### Researcher

2011 - 2013

NORC - AMIRKABIR UNIVERSITY OF TECHNOLOGY

- Energy Management in Hospital: Resource allocation
- Decision Support System: dynamic resource allocation for assigning clinicians to patients

## Teaching

### Teaching Assistant, Amirkabir University of Technology

Fall 2011

CS 1316104: PRINCIPLE OF COMPUTER 2

- Developed the assignments, final project and grade them
- Held office hours

## Teaching Assistant, Amirkabir University of Technology

Spring 2011

CS 1316004: PRINCIPLE OF COMPUTER 1

- Developed the assignments, final project and grade them
- Held office hours

## Co-Instructor, Amirkabir University of Technology

Spring 2012

CS 1316163: PRINCIPLE OF SOFTWARE DESIGN

- Developed some of the assignments, final project and grade them
- Developed course instructions and course materials

## Guest lecturer, Texas Tech University

Fall 2016

CS 2413: DATA STRUCTURE

- Teaching different types of search algorithms

## Publications

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- SocialText: A Framework for Understanding the Relationship Between Digital Communication Patterns and Mental Health.**, Mendu, S., Boukhechba, M., Baglione, A., Baee, S., Wu, C., Barnes, L., 2019, January. In 2019 IEEE 13th International Conference on Semantic Computing (ICSC) (pp. 428-433). IEEE.
- Web-based Interpretation Training for Anxiety: Testing Target Engagement and Effectiveness for a Treatment Seeking Community Sample**, Ji, J.L., Baee, S., Zhang, D., Meyer, J., Barnes, L.E., Teachman, B., IN PROCEEDING
- Do I feel better or do I think I feel better? The effectiveness of emotion regulation strategies depends on how effectiveness is measured**, Daniel, K., Baee, S., Barnes, L.E., Teachman, B., IN PROCEEDING
- A social cognitive theory-based framework for monitoring medication adherence applied to endocrine therapy in breast cancer survivors.**, Boukhechba, M., Baee, S., Nobles, A.L., Gong, J., Wells, K. and Barnes, L.E., 2018, March. In IEEE-EMBS International Conference on Biomedical and Health Informatics. IEEE-EMBS International Conference on Biomedical and Health Informatics (Vol. 2018, p. 275). NIH Public Access.
- Passenger Boarding/Alighting Management in Urban Rail Transportation**, Baee, Sonia, Eshghi, F., and Hashemi, S. M., 2012 JOINT RAIL CONFERENCE Philadelphia, Pennsylvania, USA, April 17-19

## Skills

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**Programming** Python, Java, R, C/C++, SQL programming  
**Web** Angular.Js, Javascript, CSS

## Research Interest

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- Conversational agent
- Recommendation System
- Text Mining
- Reinforcement Learning
- Mental Health
- Mobile Sensing
- Personal Health care Informatics
- Mathematics Modeling and Simulating

## Honors & Awards

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- 2010 **1st Place**, among Computer Science and Mathematic B.S. students, Amirkabir University of Technology.
- 2011 **Distinguished BSc student award** , with honorary acceptance for the MSc program
- 2013 **2nd Place**, among Computer Science - Artificial Intelligent M.S. students, Amirkabir University of Technology.
- 2016 **Presidential Fellowship**, this fellowship was funded in part by the Ed and Linda Whitacre Graduate Fellowship Endowment in Texas Tech University
- 2015 **Presidential Fellowship**, this fellowship was funded in part by the Ed and Linda Whitacre Graduate Fellowship Endowment in Texas Tech University
- 2015 **Scholarship Recipient**, to attend CRA-W (Computing Research Association) Grad Cohort Workshop.
- 2017 **Distinguished Fellowship**, one of the most prestigious fellowships offered to engineering students at the University of Virginia.
- 2018 **NSF Travel Awards**, IEEE - EMBS

## Service

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- 2018-2019 **Academic and Industry Chair**, Link Lab Student Committee on Culture and Livability , University of Virginia
- 2018-2019 **Grad SWE board**, webmaster of Women Engineers organization, University of Virginia
- 2018 **Research Experiences for Undergraduates committee member**, Leading undergraduate students in the detecting mental health from social media data, University of Virginia
- Research Experiences for Undergraduates committee member**, Leading undergraduate students in the Declarative Approaches to Knowledge Intensive Applications, Texas Tech Department of Computer Science
- 2016
- 2018 **NSBE UVA recruiter**, recruiting prospective students at the 2018 National Society of Black Engineers (NSBE) National Convention, Pittsburgh, Pennsylvania
- 2018 **SWE UVA recruiter**, recruit at the 2018 SWE National Convention, Minneapolis, Minnesota