Sonia **Baee**

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Profile

I am a fourth-year PhD student in the Department of System and Information Engineering at the University of Virginia where I am part of the Sensing Systems for Health lab. In our lab, we design intelligent systems for understanding the dynamics and personalization of health and well-being. I am especially interested in building novel computational methods and models to employ social media, responsibly and ethically, and contextual data (social-media, GPS, accelerometer, Ecological Momentary Assessment (EMA), and phone usage) toward improving our health and well-being. Among different well-being concerns, I am focusing on mental and psychological disorders (e.g., depression and anxiety), Human immunodeficiency virus (HIV), and Diabetes.

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 Satisfactions 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

- User Engagement: creating a personalized messages for patient with HIV/Diabetes to improve medication adherence.
- Digital Coaching: developing a conversational agent to optimize utilization, compliance, efficacy, and maintenance in mental health program
- EyeCar: using eye-tracking data to determine visual attention allocation of drivers in collisions.
- Managing Anxiety: evaluating behaviors of individuals with anxiety after using cognitive behavior modification program.
- Attrition: building a framework to predict dropout of users with mental health disorders.
- Mental-health framework: establishing a framework of digital communication to detect abnormality in the behaviors of individual.
- MindTrail project: analyzing behavioral track and psycho-metrics.
- Emotion regulation: detecting the emotion regulation strategies of anxious people based on their locations and their EMA response pattern.

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 Techonolgy

- 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

2020 **Redesigning the Quantified Self Ecosystem with Mental Health in Mind**, Mendu, S.,**Baee, Sonia**, Baglione, A.,Barnes, L. CHI 2020 Technology Ecosystems: Rethinking Resources for Mental Health Workshop

2019 **EyeCar: Modeling the Visual Attention Allocation of Drivers in Semi-Autonomous Vehicles**, **Baee, Sonia**, E. Pakdamanian, V. Ordonez Roman, I. Kim, L. Feng, and L.arXiv preprint arXiv:1912.07773 (2019).

2019 **SocialText: A Framework for Understanding the Relationship Between Digital Communication Patterns and Mental Health.**, Mendu, S., Boukhechba, M., Baglione, A.,**Baee, Sonia**, Wu, C., Barnes, L., 2019, January. In 2019 IEEE 13th International Conference on Semantic Computing (ICSC) (pp. 428-433). IEEE.

2019 **Web-based Interpretation Training for Anxiety: Testing Target Engagement and Effectiveness for a Treatment Seeking Community Sample**, Ji, J.L., **Baee, Sonia**, Zhang, D., Meyer, J., Barnes, L.E., Teachman, B.,Under review

2019 **Do I really feel better? Effectiveness of emotion regulation strategies depends on the measure and social anxiety**, Daniel, Katharine E and **Baee, Sonia** and Boukhechba, Mehdi and Barnes, Laura E and Teachman, Bethany A ,Depression and anxiety, 2019, Wiley Online Library

2019 **What is effective? Assessing different aspects of emotion regulation effectiveness in daily life.**, Daniel, K., **Baee, Sonia**., Barnes, L.E., Teachman, B.,Regulating Emotions Effectively: New Approaches to Understanding Effects of Time, Person, and Development. Symposium to be presented at the Association for Psychological Science Annual Convention,Washington, D.C.

2018 **A social cognitive theory-based framework for monitoring medication adherence applied to endocrine therapy in breast cancer survivors.**, **Baee, Sonia**, Boukhechba, M. , Nobles, A.L., Gong, J., Wells, K. and Barnes, L.E., 2018, March. IEEE-EMBS International Conference on Biomedical and Health Informatics (Vol. 2018, p. 275). NIH Public Access.

2012 **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

Programming Python, Java, R, C/C++, SQL programming

Web HTML, Angular.Js, Javascript, CSS

Research Interest

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

Honors & Awards

2019 **Distinguished Graduate Student Award**, University of Virginia

2018 **NSF Travel Awards**, IEEE - EMBS

2017 **Distinguished Fellowship**, one of the most prestigious fellowships offered to engineering students at the University of Virginia.

2016 **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.

2015 **Presidential Fellowship**, this fellowship was funded in part by the Ed and Linda Whitacre Graduate Fellowship Endowment in Texas Tech University

2013 **2nd Place**, among Computer Science - Artificial Intelligent M.S. students, Amirkabir University of Technology.

2011 **Distinguished BSc student award** , with honorary acceptance for the MSc program

2010 **1st Place**, among Computer Science and Mathematic B.S. students, Amirkabir University of Technology.

Service

2019 **REU mentor**, Creating personalized-content for anxious people in the study, University of Virginia

2018-2019 **Academic and Industry Chair**, Link Lab Student Committee on Culture and Livability , University of Virginia

2018-2020 **Grad SWE board**, webmaster of Women Engineers organization, University of Virginia

2018 **REU mentor**, Detecting mental health from social media data, University of Virginia

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

2016 **REU**, Declarative Approaches to Knowledge Intensive Applications, Texas Tech Department of Computer Science