

HOMA RASHIDISABET

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EDUCATION

University of Illinois at Chicago (UIC), Chicago, IL

Ph.D. in: Biongeneering
Areas of research: Artificial Intelligence (AI) in Healthcare

University of Tehran (UT), Tehran, Iran

B.Sc. in: Applied Mathematics
Thesis: Machine Learning in Neuroscience

 April 2022
Fall 2018 -
(Expected) Fall 2023

Fall 2012 - Fall 2016

WORK EXPERIENCE

- Working as Research Assistant at [Artificial Intelligence In Ophthalmology Center](#), University of Illinois at Chicago.
- Worked as Research Assistant at [BiAffect](#), a university startup company, University of Illinois at Chicago.
- Worked as R&D Data Science intern at [Johnson and Johnson \(JnJ\)](#) company in healthcare Artificial intelligence (AI) team.
- Worked as Teaching Assistant (TA) at Bioengineering Department, University of Illinois at Chicago.
- Worked as TA at Department of Mathematics, Statistics, and Computer Science, University of Tehran.

Feb 2021 - Present

Jan 2019 - Jan 2021
May 2020 - Sep 2020
Spring 2019- 2021
Fall 2015

RESEARCH INTEREST

- Using AI for computer-aided diagnosis in Bioengineering, Ophthalmology, and Radiology.
- Using AI to predict abnormalities in biomedical images, and biomedical timeseries signals.
- Using AI for quantitative image biomarker development.

PUBLICATION

Peer-reviewed journal papers

- [Rashidisabet, H.](#), Ajilore, O., Leow, A., and Demos, A. Revisiting power-law estimation with applications to real-world human typing dynamics. *Physica A: Statistical Mechanics and its Applications Journal*. [Link](#)
- [Rashidisabet, H.](#), Thomas, P., Ajilore, O., Zulueta, J., Moore, R., Leow, A. A Systems biology approach to the digital behaviorome., *A. Current Opinion in Systems Biology*. [Link](#).
- Vesel, C., [Rashidisabet, H.](#), [and 16 others, including Leow, A.]. Effects of mood and aging on keystroke dynamics metadata and their diurnal patterns in a large open-science sample: A BiAffect iOS study, *Journal of the American Medical Informatics Association*. [Link](#).

April 2022

Summer 2020

Spring 2020

Under-review journal papers

- [Rashidisabet, H.](#), Sethi, A., Jindarak, B., Edmonds, D., Chan, P., Vajaranant, T., Yi, D.. Toward generalizability in the deployment of Artificial Intelligence in Ophthalmology, Under review in *Ophthalmology Science Journal*.
- Sethi, A., [Rashidisabet, H.](#), Romond, K., Mojab, N., Kravets, S., Vajaranant, TS., Hallak, J. Explanatory and Predictive Modeling for Visual Field Progression in Primary Open Angle Glaucoma Patients, Under review in *Survey of Ophthalmology Journal*.
- Vairavan, S., [Rashidisabet, H.](#), Ness, S., Trivedi, M., Drevets, WC., Morrison, RL., Narayan, VA. Personalized Relapse Prediction in Patients with Major Depressive Disorder using Digital Biomarkers, Under review in *NPJ Digital Medicine - Nature Journal*. (*In collaboration with JnJ*)

Since April 2022

Since March 2022

Since March 2022

Published conference abstracts

- [Rashidisabet, H.](#), Chan, P., Vajaranant, T., Yi, D. Real-World Data Generalization for Glaucoma Prediction. *The Association for Research in Vision and Ophthalmology (ARVO)*; 2022. [Link](#)
- [Rashidisabet, H.](#), [and 16 others, including Leow, A.]. Characterizing Passively Collected Real-World Keyboard Dynamics in Mood Disorders as a Function of Age and Time-of-Day. *Biological Psychiatry* 87.9 (2020): S150. *Society of Biological Psychiatry (SOBP)*; 2020. [Link](#)
- Vesel, C., [Rashidisabet, H.](#), [and 16 others, including Leow, A.]. Diurnal Patterns as Evidenced by Over Eleven Million Smartphone Keystrokes During Daily Usage: An iOS BiAffect Study. *Annual National Network of Depression Centers Conference*; 2019 Sept 24-25; Ann Arbor, MI. [Link](#).
- Vesel, C., [Rashidisabet, H.](#), [and 16 others, including Leow, A.]. Diurnal Patterns as Evidenced by over Eleven Million Smartphone Keystrokes During Daily Usage: An iOS BiAffect Study. *ACNP 58th Annual Meeting: Poster Session II. Neuropsychopharmacol.* 44, 230-384 (2019). [Link](#)

SERVICE

- Reviewer for NewInML @ NeurIPS 2020 workshop. [Link](#).
- Reviewer for NewInML @ NeurIPS 2021 workshop. [Link](#).
- Reviewer for NewInML @ ICML 2022 workshop.
- Reviewer for Medical Physics Journal.

Sep 2020 - Sep 2021
Sep 2021 - Present
Starting May 2022
Jan 2022 - Present

RESEARCH EXPERIENCE	Biomedical Computer Vision (BMCV)	<ul style="list-style-type: none">Used semi-supervised and label propagation methods to generate pseudo labels for a small (n=10) labeled Fundus image dataset to segment Optic Disc for a large unlabeled Fundus dataset.Created deep discriminative representation learning methods for predicting the complex disease of glaucoma through an explainable framework of Gradient-weighted Class Activation Mapping (Grad-CAM).Developed robust Deep-Learning-based classification and semantic segmentation models respectively for predicting glaucoma and segmenting Optic Disc from noisy and heterogeneous real-world Fundus images, in a small data regime. (Resulted in an accepted abstract and a poster presentation at ARVO 2022. This work is under review in Ophthalmology Science Journal)	Aug 2021 - Present
			March 2021- Present
			Feb 2021 - Present
	Statistical (Learning) Timeseries Analysis	<ul style="list-style-type: none">Developed AI-based methods for passive continuous monitoring of neuropsychiatric patients in their natural environment via connected technologies (i.e., smartphones, wearables) to holistically model individual's health that led to the invention of digital behaviorome in the healthcare AI area. (Link to published paper.)Developed a personalized healthcare AI technology for predicting the complex neuropsychiatric disorder of depression relapse using a novel Deep Learning-based multivariate timeseries anomaly detection method from sensor data collected through smartwatch wearable devices. (Resulted in a paper under-review at NPJ Digital Medicine - Nature Journal.)Developed Machine Learning-based algorithms (i.e., supervised and unsupervised methods) for biomarker discovery from the raw accelerometer data and collected through connected wearable devices (i.e., actiwatch) and keystroke dynamics data collected through BiAffect smartphone health application to create predictive models for depression (relapse). (Link to presented poster, Resulted in a poster presentation at the annual QS 2020 Conference at JnJ)Discovered associations between keystroke dynamics data, depression, age and diurnal patterns using statistical models (e.g., hierarchical growth curve). (Link to published journal paper, and Link1).Constructed potential digital biomarkers for depression based on keystroke dynamics data collected through BiAffect via a novel statistical method that significantly outperforms state-of-the-art methods for such task. (Resulted in an under-review paper in Physica A: Statistical Mechanics and its Applications Journal, Link to presented poster.)	March 2020 - June 2020
			May - Sep 2020
			May - Sep 2020
			Feb 2019 - May 2020
			March 2020 - Present
POSTER PRESENTATION	Rashidisabet, H., [and 16 others, including Leow, A.]. Characterizing Passively Collected Real-World Keyboard Dynamics in Mood Disorders as a Function of Age and Time-of-Day. Biological Psychiatry 87.9 (2020): S150. Society of Biological Psychiatry (SOBP); 2020. Link		
	Vesel, C., Rashidisabet, H., [and 16 others, including Leow, A.]. Diurnal Patterns as Evidenced by Over Eleven Million Smartphone Keystrokes During Daily Usage: An iOS BiAffect Study. Award-winning poster presented at Annual National Network of Depression Centers Conference; 2019 Sept 24-25; Ann Arbor, MI. Link.		
	Vesel, C., Rashidisabet, H., [and 16 others, including Leow, A.]. Diurnal Patterns as Evidenced by over Eleven Million Smartphone Keystrokes During Daily Usage: An iOS BiAffect Study. ACNP 58th Annual Meeting: Poster Session II. Neuropsychopharmacol. 44, 230–384 (2019). Link		
	Rashidisabet, H., Chan, P., Vajaranant, T., Yi, D. Real-World Data Generalization for Glaucoma Prediction. The Association for Research in Vision and Ophthalmology (ARVO); 2022. Link		
	Complexity of keyboard dynamics in bipolar disorder: A BiAffect digital phenotyping study. Bark, J., Demos, A.P., Zulueta, J., Stange, J., Duffecy, J., Hussain, F., Piscitello, A., Vesel, C., Rashidisabet, H., [and 8 others, including Leow, A.]. Poster presented at the 2019 Society of Biological Psychiatry (SOBP). Chicago, IL.		
	The CAN-BIND Collaborative Study: Replicating Models of MDD Relapse: The Challenges and Opportunities of Digital Biomarkers. Li, Q., Raghavan, N., Rashidisabet, H., Vairavan, S., Narayan, V., Kennedy, S. Poster presented at the internal QS 2020 Conference at JnJ company.		
AWARD AND HONOR	Won travel grant award in National Network of Depression Centers (NNDC) conference.	Fall 2019	
	Doctoral scholarship, Bioengineering Department, UIC, Chicago, IL.	Since Fall 2018	
	Governmental scholarship, Department of Mathematics, Statistics and Computer Science, UT, Iran.	2012 - 2016	
	Ranked top 0.5% among more than 500,000 participants of the national university entrance exam, Iran.	Fall 2012	
TECHNICAL SKILL	Programming language: Fluent in Python, and R. Experienced in C++, and Java <ul style="list-style-type: none">Python package: NumPy, Pandas, SciPy, scikit-learn, PyTorch, Nevergrad, PyOD, MatplotlibR package: dplyr, corrplot, psych, caret, logspline, fitdistrplus, lme4, lmerTest	Since 2018	
	Software: Matlab, Tableau, Microsoft Office, RapidMiner	Since 2016	