Homa Rashidisabet

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EDUCATION	**University of Illinois Chicago (UIC), Chicago, IL**	Fall 2018 - (Expected) Spring 2024
	Ph.D. in: Bioengineering	
	Area of research: Biomedical Computer Vision	
	University of Illinois Chicago (UIC), Chicago, IL	Fall 2018 - Summer 2022
	MS. in: Bioengineering	
	Area of research: Artificial Intelligence	
	University of Tehran (UT), Tehran, Iran	Fall 2012 - Spring 2016
	B.Sc. in: Applied Mathematics	

WORK EXPERIENCE	— Working as Research Assistant at **Artificial Intelligence In Ophthalmology (AI-O) Center**, Department of Ophthalmology and Visual Sciences, University of Illinois Chicago.	Feb 2021 - Present
	— Worked as AI Scientist Intern at **Carl Zeiss Meditec, Inc**.	May - Dec 2022
	— Worked as Research Assistant at **BiAffect**, a university startup company, University of Illinois Chicago.	Jan 2019 - Jan 2021
	— Worked as Research and Development Data Scientist intern at **Johnson and Johnson (JnJ), Inc**.	May - Sep 2020
	— Worked as Teaching Assistant (TA) at Bioengineering Department, University of Illinois Chicago.	Spring 2019- 2021
	— Worked as TA at Department of Mathematics, Statistics, and Computer Science, University of Tehran.	Fall 2015

RESEARCH INTEREST	— Using AI to transform medicine from a reactive to a proactive discipline.
	— Developing AI methods for abnormality detection from biomedical images, and timeseries signals.
	— Improving certainty and generalizability of AI models for a potential clinical translation.

JOURNAL PUBLICATION	— **Rashidisabet, H.**, Sethi, A., Jindarak, B., Edmonds, D., Chan, P., Vajaranant, T., Yi, D. Validating generalizability of ophthalmic Artificial Intelligence models on real-world clinical data. *Translational Vision Science & Technology*.	Nov 2023
	— S. Vairavan, **Rashidisabet, H.**, [and 11 others, including Vaibhav A. Narayan]. Personalized relapse prediction in patients with major depressive disorder using digital biomarkers. *Scientific Reports*. **Link**	Oct 2023
	— **Rashidisabet, H.**, Vajaranant, T., Yi, D. A systematic review on glaucoma diagnosis using ophthalmic imaging data via deep learning. *Eye*. **Link**	April 2023
	— Hussain, F., Stange, J.P., Langenecker, S.A., McInnis, M.G., Zulueta, J., Piscitello, A., Ross, M.K., Demos, A.P., Vesel, C., **Rashidisabet, H.**, and Cao, B. Passive sensing of affective and cognitive functioning in mood disorders by analyzing keystroke kinematics and speech dynamics. *In Digital Phenotyping and Mobile Sensing (pp. 229-258). Springer, Cham*. **Link**	July 2022
	— **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*. **Link**	April 2022
	— **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**	July 2020
	— 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**	May 2020

SERVICE	— Reviewer for Springer Nature Ophthalmology and Therapy.	April 2023 - Present
	— Reviewer for Medical Physics Journal.	Jan 2022 - Present
	— Reviewer for NewInML @ ICML 2022 workshop. **Link**	May 2022 - Present
	— Reviewer for NewInML @ NeurIPS 2021 workshop. **Link**	Sep 2021 - Present
	— Reviewer for NewInML @ NeurIPS 2020 workshop. **Link**	Sep 2020 - Sep 2021

AWARD AND HONOR	— Won David R. Pepperberg Award for Best Scientific Presentation at ARVO 2022 conference from Department of Ophthalmology and Visual Sciences, UIC, Chicago, IL.	Spring 2022
	— 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

TECHNICAL SKILL	— Programming language: Fluent in Python, and R. Experienced in C++, and Java	Since 2018
	• Python package: NumPy, Pandas, SciPy, scikit-learn, PyTorch, Nevergrad, PyOD, Matplotlib	
	• R package: dplyr, corrplot, psych, caret, logspline, fitdistrplus, lme4, lmerTest	

RESEARCH EXPERIENCE	**Biomedical Computer Vision**	
	— Developing evidential deep learning-based models for uncertainty quantification on Out-of-Distribution (OOD) data to improve glaucoma classification accuracy and reliability using fundus images.	Feb 2023 - Present
	— Developing a classification via segmentation method to improve deep learning generalization and performance in small data regim for glaucoma and diabetic retinopathy classification using fundus images.	Dec 2022 - Present
	— Developed self-supervised deep learning-based models (e.g., SimCLR, DINO) for classifying eight different abnormalities in the volumetric OCT data.	May 2022 - Dec 2022
	— Created generalizable multi-layer segmentation models for OCT data using vision transformers (ViT)	Aug 2022 - Dec 2022
	— Developed semi-supervised deep learning-based models via label propagation to address small data in ophthalmology applications for Optic Nerve Head (ONH) segmentation in fundus images	March 2022 - Sep 2022
	— Developed generalizable and explainable deep learning models for segmenting Optic Nerve Head and classifying glaucoma in fundus images via Grad-CAM technique, extensive hyper-parameter search, augmentation, regularization, and transfer learning.	Feb 2021 - June 2022

Digital Medicine

	— Developed a Long Short-Term Memory Network (LSTM) based Encoder-Decoder scheme for Anomaly Detection (EncDec-AD) using fractal and entropy activity features extracted from the in-the-wild actigraphy data collected through wearable devices.	May 2020- June 2022
	— Predicted depression relapse from the real-world timeseries actigraphy data via 10 different machine learning anomaly detection methods.	May 2020- June 2022
	— Developed a novel statistical method to characterize the underlying distribution of individuals' smartphone keyboard typing interaction.	March 2020 - April 2022
	— Modeled the associations between smartphone interaction, depression, age and diurnal patterns using statistical mixed effect models using sensor data collected through smartphone keyboard typing data.	Feb 2019 - May 2020
	— Leveraged supervised and unsupervised machine learning and dimensionality reduction methods for biomarkers discovery in various neuropsychiatric disorders (e.g., depression, bipolar) using accelerometer, keyboard typing and actigraphy data collected through wearables and smartphone devices.	Feb 2019 - Feb 2021

PRESENTATION	— **Rashidisabet, H.**, Vajaranant, T., Yi, D. Generalizable AI-based glaucoma prediction via a stable model selection method. *American Academy of Ophthalmology (AAO).* **Link**	Oct 2023
	— **Rashidisabet, H.**, Vajaranant, T., Yi, D. Generalizable AI-based glaucoma prediction via a stable model selection method. *The Association for Research in Vision and Ophthalmology (ARVO).* **Link**	April 2023
	— **Rashidisabet, H.**, Chan, P., Vajaranant, T., Yi, D. Real-world data generalization for glaucoma prediction. *The Association for Research in Vision and Ophthalmology (ARVO).* **Link**	May 2022
	— **Rashidisabet, H.**, Sethi, A., Jindarak, B., Edmonds, D., Chan, P., Vajaranant, T., Yi, D. Importance of generalizations to clinical settings through glaucoma classification and Optic Nerve segmentation. *American Academy of Ophthalmology.*	Oct 2022
	— **Rashidisabet, H.**, Vajaranant, T., Aref A., Edward D., Yi, D. AI-based glaucoma prediction in glaucoma suspects. *American Glaucoma Society (AGS).*	Nov 2022
	— **Rashidisabet, H.**, Sethi, A., Jindarak, B., Edmonds, D., Chan, P., Vajaranant, T., Yi, D. Importance of generalizations to clinical settings through glaucoma classification and Optic Nerve segmentation. *American Academy of Ophthalmology.*	Oct 2022
	— **Rashidisabet, H.**, Sethi, A., Jindarak, B., Edmonds, D., Chan, P., Vajaranant, T., Yi, D. Validating the Generalizability of Ophthalmic Artificial Intelligence Models on Real World Clinical Data. Invited talk at *30th Glaucoma Symposium, UIC.*	May 2022
	— **Rashidisabet, H.**, Chan, P., Vajaranant, T., Yi, D. Real-World data generalization for glaucoma prediction. Poster presented at *The Association for Research in Vision and Ophthalmology (ARVO).* **Link**	May 2022
	— **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.* **Link**	May 2020
	— 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** in *Annual National Network of Depression Centers Conference*; Ann Arbor, MI. **Link**. This poster is also presented at *ACNP 58th Annual Meeting: Poster Session II. Neuropsychopharmacol.* **Link**	Dec 2019
	— 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. Poster presented at *ACNP 58th Annual Meeting: Poster Session II. Neuropsychopharmacol 2019.* **Link**	