Ali Rafei   *Curriculum vitae*

**CONTACT
INFORMATION**

1 Hacker Way,
Meta Platforms, Inc.
Menlo Park, CA 94025

E-mail: arafei@umich.edu
URL: umich.edu/~arafei/
Profile: Google Scholar

**CURRENT
POSITION**

Research Scientist   07/2021—present
    Meta Platforms, Inc.

**RESEARCH
INTERESTS**

Biostatistics, survey methodology, data integration, infectious disease modeling and automated detection of outbreaks, causal inference, Bayesian non-parametric modeling, machine learning

**EDUCATIONAL
BACKGROUND**

University of Michigan–Ann Arbor

Ph.D., Survey and Data Science   09/2018—08/2021

    Thesis topic: Robust Bayesian Inference for Large-scale Non-probability Samples
    Advisors: Prof. Michael R. Elliott, Prof. Carol A. C. Flannagan

Tehran University of Medical Sciences

M.S., Biostatistics,   09/2009—09/2012

    Thesis topic: Monitoring TB Surveillance Data Using a Hidden Markov Model
    Advisors: Prof. Einollah Pasha, Dr. Roohangiz Jamshidi Orak

Ferdowsi University of Mashhad

B.S., Statistics,   09/2004—07/2008

    A Review of Non-Linear Regression Procedures in SAS
    Advisor: Prof. Mehdi Emadi

**EMPLOYMENT
HISTORY**

University of Michigan–Ann Arbor

Graduate Student Research Assistant: 09/2016—07/2021

    Survey Research Center, Institute for Social Research

Ministry of Health and Medical Education

Researcher and Statistical Consultant: 06/2014—08/2016

    National Program for Disease and Health Outcome Registries
    Department of Research and Technology

Researcher and Data Analyst: 03/2010—05/2014

    National Program for NCDs Risk Factors Surveillance
    Center for Disease Control and Prevention

Tehran University of Medical Sciences

Research Assistant (part time):   06/2014—08/2016

    Cancer Research Center, Cancer Institute of Iran

ACADEMIC
AWARDS &
HONORS

Associate editor: Journal of Survey Statistics and Methodology (statistics section), Oxford University Press. (2022)

Edward C. Bryant Scholarship for an Outstanding Graduate Student in Survey Statistics, American Statistical Association (2020)

SRMS/GSS/SSS Student Paper Award: The Joint Statistical Meeting, American Statistical Association, Denver, Colorado. (2020)

Poster Award: EECS 545–Machine Learning, University of Michigan, Ann Arbor, Michigan. (Fall 2019)

Travel Award: The Joint Statistical Meeting, American Statistical Association, Denver, Colorado. (2019)

Allan L. McCutcheon Award for Best Methodology Paper, Midwest Association for Public Opinion Research, Chicago, Illinois. (2018)

Student Travel Award: the 73rd annual conference of "American Association for Public Opinion and Research, Denver, Colorado. (2018)

Travel Award: Summer School on "Modern Methods in Biostatistics and Epidemiology: Statistical Methods for Population-based Cancer Survival Analysis" in Venice, Italy, by Cancer Research Center, Cancer Institute of Iran, Tehran University of Medical Sciences. (2016)

Ranked first among graduate students in Master of Biostatistics, Tehran University of Medical Sciences. (2012)

RESEARCH
ARTICLES

[1] **Rafei, A.**, Flannagan, C.A.C., and Elliott, M.R. "Robust Model-based Inference for Non-probability samples with a Complex Probability Sample as Benchmark". *arXiv preprint arXiv:2204.03215*, 2022. [PDF]

[2] **Rafei, A.**, Flannagan, C.A.C., and Elliott, M.R. "Robust and Efficient Bayesian Inference for Non-Probability Samples Using Gaussian Process of Propensity Prediction". *arXiv preprint arXiv:2203.14355*, 2022. [PDF]

[3] **Rafei, A.**, Flannagan, C.A.C., West, B.T., and Elliott, M.R. "Robust Bayesian inference for Big Data: combining sensor-based records with traditional survey data". *Annals of Applied Statistics*, , 16(2), 1038–1070, 2022. [abstract][PDF]
doi:10.1214/21-AOAS1531

[4] **Rafei, A.**, Elliott, M.R., Jones, R., Riosmena, F., Cunningham S.A., and Mehta, N.K. "Obesity Incidence in U.S Children and Young Adults: A Pooled Analysis". *American Journal of Preventive Medicine*, 11(1), 51–59, 2022. [Abstract]
doi:10.1016/j.amepre.2021.12.021

[5] **Rafei, A.**, Flannagan, C.A.C., and Elliott, M.R. "Calibrating Big Data for population inference: applying quasi-randomization approach to naturalistic driving data using Bayesian Additive Regression Trees." *Journal of Survey Statistics and Methodology*, 8(1):148–180, 2020. [abstract]
doi:10.1093/jssam/smz060

[6] Ghelichkhani, P., Baikpour, M., Mohammad, K., Fattah, F.H., Rezaei, N., Ahmadi, N., Kalaki, S.D., Gubari, M.I., **Rafei, A.**, Koohpayehzadeh, J., Gouya, M.M. "Age, Period and Cohort Analysis of Smoking Prevalence in Iranian Population over a 25-Year Period". *Archives of Iranian Medicine.* 24(1):7, 2021. [PDF][PubMed]
doi:10.34172/aim.2021.02

[7] Rostami, S., **Rafei, A.**, Damghanian, M., Khakbazan, Z., Maleki, F., and Zendehdel, K. "Discriminatory Accuracy of the Gail Model for Breast Cancer Risk Assessment among Iranian Women." *Iranian Journal of Public Health*, 49(11):2205-2213, 2020. [Abstract][PDF]
doi:10.18502/ijph.v49i11.4739

[8] Nemati, S., **Rafei, A.**, Mehrtash, H., Freedman, N.D., Fotouhi, A., Zendehdel, K. "Socioeconomic Inequality of Tobacco Use Among Iranian Adults: A Blinder-Oaxaca Decomposition Analysis.", *Basic & Clinical Cancer Research*, 11(4), 2019. [Abstract][PDF]

[9] Toorang, F., Sasanfar, B., Razeghi Jahromi, S., Ebrahimi Koujan, S., Narmcheshm, S., **Rafei, A.**, and Zendehdel, K. "Validation of Diet History Questionnaire in Assessing Energy and Nutrient Intakes of Iranian Population.", *Iranian Journal of Public Health*, 48(6):1074–1081, 2019. [PubMed][PDF]
doi:10.18502/ijph.v48i6.2906

[10] Hosseini, M., Yaseri, M., Asady, H., Eleojo Musa, A., Koohpayehzadeh, J., **Rafei, A.**, Etemad, K., Gouya, M.M., Asgari, F., Yousefifard, M. "Prevalence of high blood pressure in Iranian adults based on the 2017 ACC/AHA guideline", *Medical Journal of The Islamic Republic of Iran*, 22(3):166–167, 2019. [PubMed][PDF]
doi:10.47176/mjiri.33.26

[11] Ghelichkhani, P., Yaseri, M., Yousefifard, M., Baikpour, M., Asady, H., Oraii, AR., **Rafei, A.**, and Hosseini M. "The Gap of Cigarette and Hookah Smoking Between Socioeconomic Groups in Iran: Effect of Inequalities on Socioeconomic Position." *Archives of Iranian Medicine*, 21(9):418–424, 2018. [PubMed][abstract]

[12] Nemati, S., **Rafei, A.**, Freedman, N.D., Fotouhi, A., Asgari, F., and Zendehdel, K. "Cigarette and water-pipe use in Iran: geographical distribution and time trends among the adult population, a pooled analysis of national STEPS surveys, 2006-2009." *Archives of Iranian Medicine*, 20(5):295–301, 2017. [PubMed][abstract]

[13] Yaseri, M., Afarideh, M., Hosseini, M., Yousefifard, M., **Rafei, A.**, Koohpayehzadeh, J., Asgari, F., Etemad, K., Gouya, M.M., Noshad, S., Bagheri, M., and Ataei, N. "Zero and five end-digit preference and blood pressure quality of care revisited." *Archives of Iranian Medicine*, 20(10):633–639., 2017. [PubMed][abstract]

[14] Mojarrab, S., **Rafei, A.**, Akhondzadeh, S., Jeddian, A.R., Jafarpour, M., and Zendehdel, K. "Diseases and health outcomes registry systems in I.R. Iran: successful initiative to improve public health programs, quality of care, and biomedical research." *Archives of Iranian Medicine*, 20(11):696–703, 2017. [PubMed][PDF]

[15] Noshad, S., Abbasi, M., Etemad, K., Meysamie, A., Afarideh, M., Khajeh, E., Asgari, F., Mousavizadeh, M., **Rafei, A.**, Neishaboury, M., Ghajar, A.R., Nakhjavani, M., Koohpayehzadeh, J., and Esteghamati A.R. "The prevalence of metabolic syndrome in Iran: a 2011 update." *Journal of Diabetes*, 9(5):518–525, 2016. [PubMed][abstract]
doi:10.1111/1753-0407.12438

[16] Noormohammadpour, P., Mansournia, M.A., Koohpayehzadeh, J., Asgari, F., Rostami, M., **Rafei, A.**, and Kordi, R. "Prevalence of chronic neck pain, low back pain and knee pain and their related factors in community-dwelling adults in Iran: a population-based national study." *The Clinical Journal of Pain*, 33(2):181–187, 2016. [PubMed][abstract]
doi:10.1097/AJP.0000000000000396

[17] Esteghamati, A.R., Etemad, K., Koohpayehzadeh, J., Abbasi, M., Meysamie, A.P., Khajeh, E., Asgari, F., Noshad, S., **Rafei, A.**, Mousavizadeh, M., Neishaboury, M.R., Afarideh, M., and Nakhjavani, M. "Awareness, treatment and control of pre-hypertension, and hypertension among adults in Iran." *Archives of Iranian Medicine*, 19(7):456–464, 2016. [PubMed][PDF]

[18] **Rafei, A.**, Pasha, E., and Jamshidi Orak, R. "A warning threshold for monitoring tuberculosis surveillance data: an alternative to Hidden Markov Model." *Journal of Tropical Medicine and International Health*, 20(7):919–929, 2015. [PubMed] [abstract]
doi:10.1111/tmi.12494

[19] Hosseini, M., Yousefifard, M., Baikpour, M., **Rafei, A.**, Fayaz, M., Koohpayehzadeh, J., Asgari, F., Etemad, K., Gouya, M.M., and Mohammad, K. "Twenty-year dynamics of hypertension in Iranian adults: age, period and cohort analysis." *Journal of the American Society of Hypertension*, 9(12):925–934, 2015. [PubMed][abstract]
doi:10.1016/j.jash.2015.09.005

[20] Asgari, F., Majidi, A., Koohpayehzadeh, J., Etemad, K., and **Rafei, A.*** "Oral hygiene status in a general population of Iran, 2011: a key lifestyle marker in relation with common risk factors of non-communicable diseases." *International Journal of Health Policy and Management*, 4(6):343–352, 2015. [PubMed][PDF]
doi:10.15171/ijhpm.2015.18

[21] Dalvand, S., Koohpayehzadeh, J., Karimlou, M., Asgari, F., **Rafei, A.**, Seifi B., Niksima, S.H., and Bakhshi, E. "Assessing factors related to waist circumference and obesity: application of a latent variable model." *Journal of Environmental and Public Health*, 2015. [abstract][PDF]
doi:10.1155/2015/893198

[22] Hosseini, M., Baikpour, M., Yousefifard, M., Fayaz, M., Koohpayehzadeh, J., Ghelichkhani, P., Asady, H., Asgari, F., Etemad, K., **Rafei, A.**, and Gouya, M.M. "Blood pressure percentiles by age and body mass index for adults." *EXCLI Journal*, 14:465–477, 2015. [PubMed][PDF]
doi:10.17179/excli2014-635

[23] Bakhshi, E., Koohpayehzadeh. J., Seifi, B., **Rafei, A.**, Biglarian, A., Asgari, F., Etemad, K., Bidhendi, Y.R. "Obesity and related factors in Iran: The STEPS survey, 2011." *Iranian Red Crescent Medical Journal*, 17(6), 2015. [PubMed][PDF]
doi:10.5812/ircmj.17(6)2015.22479

[24] Yousefi, A., Sepehri, A.S., Kargar, M., Akhondzadeh, S., **Rafei, A.**, Sadeghi, M., Alimadadi, A., Ghaeli, P. "Comparing effects of ketamine and thiopental administration during electroconvulsive therapy in patients with major depressive disorder: a randomized, double-blind study." *The Journal of ECT*, 30(1):15–21, 2014. [PubMed][abstract]
doi:10.1097/YCT.0b013e3182a4b4c6

[25] Hosseini, M., Navidi, I., Yousefifard, M., Heshmat, R., Koohpayehzadeh, J., Asgari, F., Etemad, K., **Rafei, A.**, and Gouya, M.M. "Serum HDL-C level of Iranian adults: results from sixth national surveillance of risk factors of non-communicable disease." *Journal of Diabetes and Metabolic Disorders*, 13(1):67, 2014. [PubMed][PDF]
doi:10.1186/2251-6581-13-67

[26] Esteghamati, A.R., Etemad, K., Koohpayehzadeh, J., Abbasi, M., Meisamie, A.P., Noshad, S., Asgari, F., Mousavizadeh, M., **Rafei, A.**, Khajeh, E., Neishaboury, M.R., Sheikhbahaei, S., and Nakhjavani, M. "Trends in prevalence of diabetes and impaired fasting glucose according to obesity in Iran, 2005-2011." *Diabetes Research and Clinical Practice*, 103(2):319–327, 2014. [PubMed][PDF]
doi:10.1016/j.diabres.2013.12.034

[27] Koohpayehzadeh, J., Etemad, K., Abbasi, M., Meisamie, A.P., Sheikhbahaei, S., Asgari, F., Noshad, S., Hafezi-Nejad, N., **Rafei, A.**, Mousavizadeh, M., Khajeh, E., Ebadi, M., Nakhjavani, M., and Esteghamati, A.R. "Gender-specific changes in physical activity pattern in Iran: national surveillance of non-communicable disease risk factors (2007–2011)." *International Journal of Public Health*, 59(2):231–241. 2014. [PubMed][abstract]
doi:10.1007/s00038-013-0529-3

[28] Bidhendi, Y.R., Rahgozar, M., Koohpayehzadeh, J., **Rafei, A.**, Asgari, F., and Bakhshi, E. "Association between major non-communicable diseases risk factors and fasting blood glucose in Iran: comparison of two techniques, with and without dichotomizing the Response." *British Journal of Medicine and Medical Research*, 4(7):1514–1525. 2014. [abstract][PDF]
doi:10.9734/BJMMR/2014/6951

[29] Adavi, M., Salehi, M., Roudbari, M., Asgari, F., and **Rafei, A.** "The comparison of the predictive precision of artificial neural networks and bivariate logistic regression in diagnosis of patients with hypertension and diabetes." *The Razi Journal*, 21(123):54–61, 2014. [abstract][PDF] *(in Persian)*

[30] Hosseini, M., Yousefifard, M., Taslimi, S., Sohanaki, H., Nourijelyani, K., Asgari, F., Etemad, K., Koohpayehzadeh, J., Heidarian Miri, H., **Rafei, A.**, Gouya, M.M., and Mohammad, K. "Trend of blood cholesterol level in Iran: results of four national surveys during 1991-2008." *Acta Medica Iranica*, 51(9):642–651, 2013. [PubMed][PDF]

[31] Hosseini,. M., Taslimi, S., Yousefifard, M., Safarpour, M., Asgari, F., Etemad, K., Heidarian Miri, H., **Rafei, A.**, Koohpayehzadeh, J., and Gouya, M.M. "Serum cholesterol level nomograms for Iranian adults; suggestion for cut-offs on the basis of a national survey." *Iranian Journal of Public Health*, 42(2):164–171, 2013. [PubMed][PDF]

[32] Kuhpayezadeh, J., Dargahi, H., Shajari, J., **Rafei, A.**, Narenjiha, M., Afsharpour, S., and Mehdivarzi, D. "Investigation of clinical medical teachers' opinion about validity-feasibility of clinical assessment tools in medical sciences universities in Tehran." *Creative Education*, 3(6):946–950, 2012. [abstract][PDF]
doi:10.4236/ce.2012.326144

[33] **Rafei, A.**, Pasha, E., and Jamshidi Orak, R. "Tuberculosis surveillance using a Hidden Markov Model." *Iranian Journal of Public Health*, 41(10):87–96, 2012. [PubMed][PDF]

CONFERENCE TALKS & PUBLICATIONS

[1] Title: "Robust Bayesian Inference for Count Data with Varying Exposures in Non-probability Samples Using Gaussian Processes of Propensity Prediction." In:
–*Statistics Canada's 2021 International Methodology Symposium* [virtual], 2021.
–*Joint Statistical Meeting* [virtual], 2021.
–*AAPOR 76th Annual Conference* [virtual], 2021.

[2] Title: "Robust inference for non-probability samples when a benchmark survey with a complex design is present: a synthetic population approach with non-parametric Bayesian modeling." In:
–*Joint Statistical Meeting* [virtual], 2020. *(Best Paper Award)*
–*AAPOR 75th Annual Conference*, Atlanta, Georgia [virtual], 2020.
–*Michigan Student Symposium for Interdisciplinary Statistical Sciences*, 2020.

[3] Title: "A Doubly Robust Weighting Approach for Inference in Big Data Using Bayesian Non-Parametric Modeling." In: *MAPOR 44th Annual Conference*, Chicago, Illinois, 2019.

[4] Title: "Bayesian Doubly Robust Adjustment for Finite Population Inference using Big Data: Application to Naturalistic Driving Studies." In: *Joint Statistical Meeting*, Denver, Colorado, 2019.

[5] Title "Big Data for Finite Population inference: Calibrating pseudo-weights based on estimated control totals using the general regression estimator." In:
–*ITACOSM–Survey and Data Science*, Florence, Italy, 2019.
–*AAPOR 74th Annual Conference*, Toronto, Canada, 2019.

[6] Title: "Improving Rotation Group Bias in the Current Population Survey using a Modified Hidden Markov Model." In: *MAPOR 43rd Annual Conference*, Chicago, Illinois, 2018. *(Best Paper Award)*

[7] Title: "Design-based approaches to adjust for complex sampling scheme in additive hazards models." In: *MAPOR 43rd Annual Conference*, Chicago, Illinois, 2018.

[8] Title: "Calibrating Big Data for population inference: applying quasi-randomization method to naturalistic driving data via Bayesian Additive Regression Trees." In:
–*Joint Statistical Meeting*, Vancouver, Canada, 2018.
–*BigSurv2018 Conference*, Barcelona, Spain, 2018.
–*AAPOR's 73rd Annual Conference*, Denver, Colorado, 2018.
–*2017 U-M Data Science Research Forum MIDAS*, University of Michigan, 2018.

[9] Title: "Caregivers and their effect on health-related quality of life in elderly breast cancer patients", In: *11th European Breast Cancer Conference (EBCC-11)*, Barcelona, Spain, 2018.

[10] Title: "Iran Familial Breast Cancer Registry (IRFBCR)-mission and structure." In: *1st International Congress of Diseases and Health Outcomes Registry and 1st National Congress of Medical Informatics*, 2017.

[11] Title: "Geographical patterns and time trends in prevalence of cigarette smoking and water-pipe use in Iran: analysis of pooled data of six consecutive rounds of national survey, 2004-2011." In: *Proceeding of the international IARC conference*, 2016.

[12] Title: "Oral hygiene behavior in Iran: non-communicable diseases risk factors surveillance." In: *Proceeding of the 9th Iranian and 13th Kuwaiti Divisions of IADR joint Congress*, 2013. [abstract]

[13] Title: "A warning threshold for monitoring tuberculosis surveillance data using a periodic Hidden Markov Model." In: *Proceedings of the 9th Seminar of Probability and Statistical Processes (SPSP9)*, 2013.

[14] Title: "A periodic autoregressive Hidden Markov Model for the surveillance of tuberculosis." In: *Proceedings of the 12th Conference of Islamic Countries on Statistical Science (ICSS 2012)*, 2012. [abstract]

[15] Title: "Secular trends of overweight and obesity over past six years in Iran from the viewpoint of non-communicable diseases risk surveillance system." In: *Proceedings of the 3rd Iranian Congress of Obesity (ICO 2012)*, 2012. [abstract]

CONFERENCE POSTERS

[16] Title: "Electrocorticography from the Orbitofrontal Cortex Predicts Gambling Tasks Suggests a Focal Network Architecture", EECS 545 Poster Session, University of Michigan, 2019.

[17] Title: "Bayesian Doubly Robust Adjustment for Finite Population Inference using Big Data: Application to Naturalistic Driving Studies." In: *Michigan Student Symposium for Interdisciplinary Statistical Sciences*, 2019.

[18] Title: "Calibrating Big Data for population inference: applying quasi-randomization method to naturalistic driving data via Bayesian Additive Regression Trees." In:
–*Michigan Student Symposium for Interdisciplinary Statistical Sciences*, 2018.
–*The 3rd Annual MIDAS Symposium*, University of Michigan, 2017.

[19] Title: "Big data and challenges for inference about population: Comparison of naturalistic driving data in SPMD with NHTS as a nationally representative probability sample." In: *Midwest Big Data Hub Transportation and Mobility Conference*, University of Michigan, 2017.

OTHER PUBLICATIONS

[20] Kousha, A., Etemad, K., Koohpayehzadeh, J., Asgari, F., Abachzadeh, K., **Rafei, A.**, Salavati, F., Darman, M., Rezanejad, P., Pariani, A. and other contributors from medical universities. The national report: "Non-communicable disease risk factors surveillance: selected results 2011." *World Health Organization*, 2018. [PDF]

[21] Asgari, F., **Rafei, A.**, and Koohpayehzadeh, J. The brief report: "Provincial comparison of non-communicable diseases risk factors based on four national NCDs risk factors survey data from 2006 to 2009." *Center for Diseases Control and Prevention, Iran*, 2014. [PDF]

[22] Koohpayehzadeh, J., Asgari, F., **Rafei, A.**, and Heidarian Miri, H. The annual report: "Non-communicable diseases risk factors surveillance in Iran, 2009." *Center for Diseases Control and Prevention, Iran*, 2013. [PDF]

[23] Koohpayehzadeh, J., Asgari, F., and **Rafei, A.** The annual report: "Non-communicable diseases risk factors surveillance in Iran, 2008." *Center for Diseases Control and Prevention, Iran*, 2013. [PDF]

[24] Koohpayehzadeh, J., Asgari, F., Azimi, S.S., **Rafei, A.**, and Bejani, S. The report: "Non-communicable diseases risk factors surveillance system in Iran." *Center for Diseases Control and Prevention, Iran*, 2012. [PDF in English, Persian]

[25] Koohpayehzadeh, J., Asgari, F., **Rafei, A.**, and Etemad, K. The brief report: "Non-communicable diseases risk factors report in Iran from 2006 to 2009." *Center for Diseases Control and Prevention, Iran*, 2011. [PDF]

TEACHING EXPERIENCE	Main lecturer: a two-day course on math review, introductory statistics, and basics of data analysis with R. The orientation program for new MS students in survey methodology, Michigan Program in Survey Methodology, Institute for Social Research, University of Michigan. (2018-2020)
	Curriculum developer and main lecturer: The course on "biostatistics with R", Cancer Research Center, Cancer Institute of Iran, Tehran University of Medical Sciences, Tehran, Iran. (2016)
	Curriculum developer, lecturer and facilitator: the lecture on "data cleaning, data linkage, and data analysis in registry-based data, The second national workshop of disease registries, Department of Research and Technology, Ministry of Health and Medical Education, Tehran, Iran. (2016)
	Curriculum developer and main lecturer: The course on "applied statistics using Stata", Research Diploma on Cancer Epidemiology, Exceptional Talented Development Center, in collaboration with Cancer Research Center, Tehran University of Medical Sciences, Tehran, Iran. (2015)
	Curriculum developer, lecturer and facilitator: the workshop on the "management of disease registries", Department of Research and Technology, Ministry of Health and Medical Education, Tehran, Iran. (2015)
	Course manager, curriculum developer and main lecturer: the workshop on "statistical data analysis in medical research using R", School of Public Health, Iran University of Medical Sciences, Tehran, Iran. (2015)
	Course manager, curriculum developer and main lecturer: the workshop on "Hidden Markov Model and its application in health sciences", School of Health Management and Information Sciences, Tehran University of Medical Sciences, Tehran. (2013)
	Course manager, curriculum developer and main lecturer: the workshop on "diseases mapping and spatial data analysis using ArcGIS", School of Health Management and Information Sciences, Tehran University of Medical Sciences, Tehran, Iran. (2013)
	Course Manager, curriculum developer and main lecturer: the workshop on "an introduction to Hidden Markov Models and its application in diseases surveillance", Eleventh Iranian Statistical Conference, Iran University of Science and Technology, Tehran, Iran. (2012)
	Course manager, curriculum developer and main lecturer: the workshop on "statistical computing using Stata", School of Health Management and Information Sciences, Tehran University of Medical Sciences, Tehran. (2012)
	Curriculum developer and main lecturer: the workshop on "an introduction to R and its application in diseases modeling", Third National Conference on the applications of Mathematics and Control Theory in Medical Sciences, Islamic Azad University of Bojnourd, Bojnourd, Iran. (2011)
	Course manager, curriculum developer and main lecturer: the course on "statistical programming with R", Center for Diseases Control and Prevention, Ministry of Health and Medical Education, Tehran, Iran. (2011)
	Workshop manager, curriculum developer and main lecturer: the workshop on "statistical computing using R", School of Health Management and Information Sciences, Tehran University of Medical Sciences, Tehran. (2011)
	Course manager, curriculum developer and main lecturer: the workshop on "statistical analysis in medical research using R", School of Medicine, Iran University of Medical Sciences, Tehran, Iran. (2010)
	Teaching assistance of the course "linear regression techniques", School of Math Sciences, Ferdowsi University of Mashhad, Mashhad, Iran. (2007)
	Tutoring Probability and Statistics, Mashhad, Iran. (2004-2008)
INVITED TALKS	Invited talk: "On the weighting methodology of COVID-19 Trends and Impact Survey", Monthly meeting of DELPHI Group, Carnegie Mellon University [virtual]. (2022)
	Invited talk: the "Transportation Workshop", The Statistical and Applied Mathematical Sciences Institute, Durham, North Carolina. (2020)

Invited proposal talk: the "Robust inference for non-probability samples when a benchmark survey with a complex design is present: a synthetic population approach with non-parametric Bayesian modeling", The Joint Statistical Meeting, Philadelphia, Pennsylvania [virtual]. (2020)

Invited lecturer: the training seminar on "sampling design and executive manual of the national survey of oral health", Center for Diseases Control and Prevention, Ministry of Health and Medical Education, Tehran, Iran. (2015)

Invited lecturer: the lecture on "methodology and findings of the national non-communicable diseases risk factors surveillance system in Iran", Research Institute for Endocrine Sciences, Shahid-Beheshti University of Medical Sciences, Tehran, Iran. (2013)

Invited lecturer: the lecture on "methodology and findings of the national non-communicable diseases risk factors surveillance system in Iran", National Institute of Health Research, Tehran University of Medical Sciences, Tehran, Iran. (2012)

Invited lecturer: the training seminar on "sampling design and executive Protocol of the national survey of oral health", Center for Diseases Control and Prevention, Ministry of Health and Medical Education, Tehran, Iran. (2012)

SOFTWARE PACKAGE	GPPP: Implementing a rank-reduced Gaussian Process of Propensity Prediction method in a non-probability sample setting, written in stan, 2021. [GitHub]

BPSPP: Implementing a Penalized Spline of Propensity Prediction method in a non-probability sample setting, written in stan, 2020. [GitHub]

DRInfNPS: A set of R functions for doubly robust inference for non-probability samples in presence of a relevant reference survey, written in R, 2020. [GitHub]

SVYAAM: design-based adjustment for Aalen's additive hazard model, a package in R/C++, 2018. [GitHub]

CALIBRATE: calibrating non-probability samples using quasi-randomization approach, a package in R, 2017. [GitHub]

ARHMM: a Modified Autoregressive Hidden Markov Model with applications in infectious diseases modeling, written in both C++ and R, 2016. [GitHub]

MENTORING & THESIS CONSULTING

MD/MSc students:

Mandana Gholamnia Roshan, "Dietary habits and serum level of HbA1C among diabetic and pre-diabetic patients in Iran", School of Medicine, Iran University of Medical Sciences. (2018)

Sahar Rostami, "Risk assessment of breast cancer among Iranian female population using Gail's model: a case-control study", Cancer Research Center, Cancer Institute of Iran, Tehran University of Medical Sciences. (2016)

Ahmadi Mahdieh, "Estimation of optimal cut-off point of HbA1C for early diagnosis of diabetic patients in the general population of Iran: findings form national Survey of non-communicable diseases risk factors, 2011", Department of Community Medicine, Iran University of Medical Sciences. (2016)

Saeed Nemati, "Prevalence and geographical distribution of cigarette and water-pipe smoking in presence of socioeconomic factors among Iranian adult population, 2011", Department of Biostatistics and Epidemiology, Tehran University of Medical Sciences. (2015)

Hadi Maleki, "Comparison of framingham and SCORE models in risk assessment analysis of cardiovascular diseases among Iranian adult population", Department of Community Medicine, Iran University of Medical Sciences. (2015)

Hossein Nouri, "Estimation of the prevalence of asthma and asthma-like symptoms in a general population of Iran, 2011 and its association with active and passive smoking", Department of Community Medicine, Iran University of Medical Sciences. (2015)

Akram Hosseinifar, "Investigation of the trends in prevalence of metabolic syndrome among Iranian adults from 2004 to 2011", Department of Community Medicine, Iran University of Medical

Sciences. (2015)

Ali Moaf, "Estimation of the prevalence of self-reported angina pectoris in presence of related risk factors in Iran, 2011", Department of Community Medicine, Iran University of Medical Sciences. (2014)

Zahra Hassanzadeh Tabatabaie, "Risk assessment analysis of cardiovascular diseases based on the framingham risk scores in Iran, 2011", Department of Community Medicine, Iran University of Medical Sciences. (2013)

PhD Students:

Fatemeh Behtaj, "Investigation of the effects of diet and physical activity in the risk of metabolic syndrome among Iranian Women, 2011", Department of Community Medicine, Iran University of Medical Sciences. (2015)

SHORT COURSE & WORKSHOP PARTICIPATION

A one-week course on "Causal Inference (EPID 780)", Summer Session of Epidemiology, University of Michigan, Ann Arbor. (2018)

A one-week course on "Statistical methods for population-based survival analysis", Summer School on Modern Methods in Biostatistics and Epidemiology, Cison di Valmarino, Italy. (2016)

A three-day national workshop on "management of disease registries", Department of Research and Technology, Ministry of Health and Medical Education, Tehran, Iran. (2015)

A one-day workshop on "cardiovascular diseases registry", Isfahan Cardiovascular Diseases Research Institute, Isfahan University of Medical Sciences, Isfahan, Iran. (2015)

A one-day workshop on "Design and analysis of complex sample surveys", National Institute of Medical Research Development, Ministry of Health and Medical Education, Tehran, Iran. (2015)

A one-day workshop on "Examining solutions for cancer registration in LMICs", the 37th annual International Association of Cancer Registries Conference", Tata Memorial Center, Mumbai, India. (2015)

A short course on "Cancer Epidemiology", Cancer Research Center, Cancer Institute of Iran, in collaboration with Exceptional Talented Development Center, Tehran University of Medical Sciences, Tehran, Iran. (2015)

A two-day national workshop on "population-based cancer registry", Cancer Research Center, Cancer Institute of Iran, in collaboration with International Agency for Research on Cancer, Tehran, Iran. (2015)

A two-day national workshop on "management of disease registries", Department of Research and Technology, Ministry of Health and Medical Education, Tehran, Iran. (2015)

A five-day training course on "scientific writing", Non-Communicable Diseases Research Center, Tehran University of Medical Sciences, Tehran, Iran. (2014)

A one-week training course on "genetic epidemiology", Cancer Research Center, Cancer Institute of Iran, Tehran University of Medical Sciences, Tehran. (2014)

A one-day workshop on "parallel processing", Iran University of Science and Technology, Tehran, Iran. (2012)

The national workshop on "prioritizing methods for non-communicable diseases risk factors", Zahedan University of Medical Sciences, Chabahar, Iran. (2012)

The workshop on "computational methods for estimation of the burden of non-communicable diseases", North Khorasan University of Medical Sciences, Bojnourd, Iran. (2011)

The summer course on "disease modeling", Pasteur Institute of Iran, Tehran.(2011)

The summer course on "introduction to statistical analysis using Stata", Pasteur Institute of Iran, Tehran, Iran. (2011)

The workshop on "diseases mapping using ArcGIS", Center for Diseases Control and Prevention, Ministry of Health and Medical Education, Iran. (2011)

The third national conference on "applications of mathematics and control theory in medical sciences", Islamic Azad University of Bojnourd, Bojnourd, Iran. (2011)

The international training course on "cost-effectiveness analysis in health and medicine", Kermanshah University of Medical Sciences, in collaboration with Queensland University, Kermanshah, Iran. (2011)

The workshop on "advanced survival analysis", Ilam University of Medical Sciences, Ilam, Iran. (2010)

The training course on the "concepts, requirements and documentation of quality management in ISO9000", Mashhad, Iran. (2009)

A one-month training course of "banking services", Iran Institute of Banking, Pasargad Bank, Mashhad. (2009)

A two-day workshop on "data mining and its application in Commerce", Ferdowsi University of Mashhad, Mashhad, Iran. (2009)

A two-day workshop on "wavelets and its application in statistics", Ferdowsi University of Mashhad, Iran. (2007)

A one-day workshop on "spatial statistics", Ferdowsi University of Mashhad, Mashhad, Iran. (2006)

PEER-REVIEWING EXPERIENCE	Journal of Survey Statistics and Methodology (2019-2022) Biometrics Journal (2022) BMC Medical Research Methodology (2022) BMC Cardiovascular Disorders (2022) Journal of Statistical Methods & Applications (2020) Journal of Sociological Methods and Research (2020) Journal of Transboundary and Emerging Diseases (2020) BMC Public Health Journal (2020) Journal of Statistical Computation and Simulation (2019) Statistics and Probability Letters (2019) BMC Infectious Diseases Journal (2019) Nature Scientific Reports Journal (2018-2022) PLOS ONE Journal (2016-2020)

EXPERIENCE IN SURVEY METHODOLOGY

Revising the weighting methodology of COVID-19 Trends and Impact Survey, Meta.

Contribution to the design and analysis of three consecutive rounds of "National Survey of NCDs Risk Factors (STEPS)", years 2008, 2009, 2011, Center for Disease Control and Prevention, Ministry of Health and Medical Education.

Contribution to the design of "National Survey of Cancer Awareness", year 2015-2016, Cancer Research Center, Cancer Institute of Iran.

Contribution to the design and analysis of two rounds of "National Oral Health Survey", years 2012, 2015, Center for Disease Control and Prevention, Ministry of Health and Medical Education.

ACADEMIC EXPERTISE

Mathematics:
Applied Mathematics, Calculus, Real Analysis, Linear Algebra, Differential Equations

Statistics & Machine Learning:
Statistical Inference, Probability, Machine Learning, Stochastic Processes, Bayesian Analysis, Time Series, Multi-level Regression Models, Mixture Models, Bayesian Inference, Multivariate Analysis, Categorical Data Analysis, Survival Data Analysis, Statistical Quality Control

Survey Methodology:
Inference for Complex Sample Surveys, Sampling Theory, Data Collection Methods, Total Survey Error

Epidemiology and Public Health:
    Causal inference, Syndromic Surveillance and Infectious Disease Modeling, Clinical Trials, Case-Control, Cancer Epidemiology, Cancer Survival Analysis, Non-Communicable Diseases Risk Factors Surveillance, Genetic Epidemiology

COMPUTER SKILLS

Computer Programming:
    C, C++, Python, HTML, PHP, SQL

Statistical and Numerical Analysis:
    R, Stata, Stan, WinBUGS, SAS, SPSS, Minitab, EpiInfo, EpiData
    Maple, ArcGIS, Matlab (beginner)

Web/Graphic Designing and Multimedia Software:
    Macromedia Dreamweaver, MS-FrontPage
    Adobe Photoshop, Adobe inDesign, Adobe Flash MX, Adobe Fireworks, Multimediabuilder

Hardware/Information Technology:
    Networking, hardware installation

Desktop Editing Software:
    TeX (LaTeX, BibTeX, BEAMER),
    Microsoft Office, Google Docs, EndNote

Operating Systems:
    Linux, Windows, DOS, Android OS

PROFESSIONAL MEMBERSHIPS

American Statistical Association (2014-Present)
Midwest Association for Public Opinion Research (2018-Present)
American Association for Public Opinion Research (2016-Present)
Iranian Statistical Society (IrSS) (2007-Present)
Student Academic Association of Ferdowsi University of Mashhad (2005-2008)

LANGUAGE

Farsi - native language

English - speak fluently and read/write with high proficiency

HOBBIES

Persian calligraphy, playing Tar (Persian folk instrument), caricaturing, climbing, traveling, listening music

FURTHER INFORMATION

Further information and auxiliary documents can be found at:
https://www.arafei.com/.