

Stanford



Ivana Maric

Assistant Professor (Research) of Pediatrics (Neonatology)
Pediatrics - Neonatal and Developmental Medicine

Bio

BIO

Ivana Maric is an Assistant Professor in the Pediatrics Department at the Stanford University School of Medicine. Her research focuses on applying machine learning to improving maternal and neonatal health. Her main focus has been on developing machine learning models for early prediction of adverse outcomes of pregnancy from omics and electronic health records data, that could guide development of low-cost, point of care diagnostic tools. Her main interest is in solutions that are applicable worldwide and especially in low-resource settings. Previously, her research focused on information theory, a mathematical discipline tightly related to statistics and machine learning. She is a recipient of the 2021 Rosenkranz Prize awarded for innovative work to improve health in low- or middle-income countries. She is also a co-recipient of the 2013 IEEE Communications Society Best Tutorial Paper Award.

She received BS degree from the University of Novi Sad, Serbia, MS and PhD at Rutgers University and postdoctoral training at Stanford University. She served as an Associate Editor for the IEEE Communications Letters from 2009 to 2012 and for the Trans. on Emerging Telecommunications Technologies from 2016 to 2018.

ACADEMIC APPOINTMENTS

- Assistant Professor (Research), Pediatrics - Neonatal and Developmental Medicine
- Member, Bio-X
- Member, Maternal & Child Health Research Institute (MCHRI)

ADMINISTRATIVE APPOINTMENTS

- Faculty Affiliate, King Center on Global Development, (2024- present)

HONORS AND AWARDS

- The Rosenkranz Prize, Freeman Spogli Institute for International Studies and Stanford Health Policy, Stanford University (2021)
- IEEE Communications Society Best Tutorial Paper Award, IEEE (2013)

LINKS

- My Google Scholar Citations: <https://scholar.google.com/citations?user=O4pBP40AAAAJ&hl=en>
- My lab site: <https://mariclab.stanford.edu/>

Publications

PUBLICATIONS

- **Discovery of sparse, reliable omic biomarkers with Stabl.** *Nature biotechnology*

- Hédou, J., Mari#, I., Bellan, G., Einhaus, J., Gaudillière, D. K., Ladant, F. X., Verdonk, F., Stelzer, I. A., Feyaerts, D., Tsai, A. S., Ganio, E. A., Sabayev, M., Gillard, et al
2024
- **Early prediction and longitudinal modeling of preeclampsia from multiomics.** *Patterns (New York, N.Y.)*
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 - **Decreased Mortality Rate Among COVID-19 Patients Prescribed Statins: Data From Electronic Health Records in the US** *Frontiers in Medicine*
Maric, I., Oskotsky, T., Kostić, I., Le, B., Wong, R. J., Shaw, G. M., Sirota, M., Stevenson, D. K.
2021; 8
 - **Data-Driven Modeling of Pregnancy-Related Complications.** *Trends in molecular medicine*
Espinosa, C. n., Becker, M. n., Mari#, I. n., Wong, R. J., Shaw, G. M., Gaudilliere, B. n., Aghaeepour, N. n., Stevenson, D. K.
2021
 - **Mortality Risk Among Patients With COVID-19 Prescribed Selective Serotonin Reuptake Inhibitor Antidepressants.** *JAMA network open*
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 - **Towards personalized medicine in maternal and child health: integrating biologic and social determinants.** *Pediatric research*
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2020
 - **Early Prediction of Preeclampsia via Machine Learning** *American Journal of Obstetrics & Gynecology MFM*
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 - **Deep representation learning identifies associations between physical activity and sleep patterns during pregnancy and prematurity.** *NPJ digital medicine*
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2023; 6 (1): 171
 - **Persistent Bacterial Vaginosis and Risk for Spontaneous Preterm Birth.** *American journal of perinatology*
Blumenfeld, Y. J., Mari#, I., Stevenson, D. K., Gibbs, R. S., Shaw, G. M.
2023
 - **Development of a Urine Metabolomics Biomarker-Based Prediction Model for Preeclampsia during Early Pregnancy.** *Metabolites*
Zhang, Y., Sylvester, K. G., Jin, B., Wong, R. J., Schilling, J., Chou, C. J., Han, Z., Luo, R. Y., Tian, L., Ladella, S., Mo, L., Maric, I., Blumenfeld, et al
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 - **Multimic signals associated with maternal epidemiological factors contributing to preterm birth in low- and middle-income countries.** *Science advances*
Espinosa, C. A., Khan, W., Khanam, R., Das, S., Khalid, J., Pervin, J., Kasaro, M. P., Contrepois, K., Chang, A. L., Phongpreecha, T., Michael, B., Ellenberger, M., Mehmood, et al
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 - **Postpartum long-acting reversible contraception among privately insured: national analysis 2007-2016, by term and preterm birth.** *Contraception*
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 - **Large-scale correlation network construction for unraveling the coordination of complex biological systems.** *Nature computational science*
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- **Breath: The Exhaust of Metabolism.** *The Journal of pediatrics*
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- **Omics approaches: interactions at the maternal-fetal interface and origins of child health and disease.** *Pediatric research*
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- **Information Theoretic Perspectives on 5G Systems and Beyond**
edited by Maric, I., Shamai (Shitz), S., Simeone, O.
Cambridge University Press.2022
- **Multimomics Characterization of Preterm Birth in Low- and Middle-Income Countries (vol 3, e2029655, 2020)** *JAMA NETWORK OPEN*
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2021; 4 (2)
- **DECREASED MORTALITY RATE AMONG COVID-19 PATIENTS USING STATINS: DATA FROM US ELECTRONIC HEALTH RECORDS**
Oskotsky, T., Maric, I., Kostic, I., Le, B. L., Wong, R. J., Shaw, G. M., Sirota, M., Stevenson, D. K.
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- **PERSISTENT BACTERIAL VAGINOSIS AND RISK FOR SPONTANEOUS PRETERM BIRTH**
Blumenfeld, Y. J., Maric, I., Stevenson, D. K., Shaw, G. M.
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- **Integration of mechanistic immunological knowledge into a machine learning pipeline improves predictions** *NATURE MACHINE INTELLIGENCE*
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- **Maternal Height and Risk of Preeclampsia among Race/Ethnic Groups.** *American journal of perinatology*
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- **Capacity-Achieving Rate-Compatible Polar Codes for General Channels** *IEEE Wireless Communications and Networking Conference Workshops (WCNCW)*
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- **Short Message Noisy Network Coding With Sliding-Window Decoding for Half-Duplex Multihop Relay Networks** *IEEE TRANSACTIONS ON WIRELESS COMMUNICATIONS*
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- **Capacity-Achieving Rate-Compatible Polar Codes** *2016 IEEE INTERNATIONAL SYMPOSIUM ON INFORMATION THEORY*
Hong, S., Hui, D., Maric, I.
2016: 41-45
- **Diversity-Multiplexing Tradeoff for the Interference Channel With a Relay** *IEEE TRANSACTIONS ON INFORMATION THEORY*
Zahavi, D., Zhang, L., Maric, I., Dabora, R., Goldsmith, A. J., Cui, S.
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- **On the Achievable Rates of Multihop Virtual Full-Duplex Relay Channels** *2015 IEEE INTERNATIONAL SYMPOSIUM ON INFORMATION THEORY (ISIT)*
Hong, S., Maric, I., Hui, D., Caire, G.
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- **Multihop Virtual Full-Duplex Relay Channels** *2015 IEEE INFORMATION THEORY WORKSHOP (ITW)*
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- **Enhanced Relay Cooperation via Rate Splitting** *CONFERENCE RECORD OF THE 2014 FORTY-EIGHTH ASILOMAR CONFERENCE ON SIGNALS, SYSTEMS & COMPUTERS*
Maric, I., Hui, D.
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- **Capacity Bounds and Exact Results for the Cognitive Z-Interference Channel** *IEEE TRANSACTIONS ON INFORMATION THEORY*
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- **Capacity of Cognitive Radio Networks** *Multiantenna Channels: Principles of Cognitive Radio*
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- **Breaking Spectrum Gridlock With Cognitive Radios: An Information Theoretic Perspective** *PROCEEDINGS OF THE IEEE*

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