Stanford

Anoop Rao

Assistant Professor of Pediatrics (Neonatology)

Pediatrics - Neonatology

CLINICAL OFFICE (PRIMARY)

- **Neonatal Intensive Care Unit**

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Bio

BIO

Dr. Rao is a Physician-Innovator at Stanford's Neonatal ICU, where he combines clinical care with leading-edge research. He runs an NIH-funded translational research program dedicated to advancing (1) non-invasive monitoring technologies (2) nutrition management (3) physiological waveform analysis for diagnosis, monitoring and prognosis of neonatal conditions such as HIE, NEC and BPD. Dr. Rao is triple board certified in Pediatrics, Neonatology, and Clinical Informatics, having completed his residency in Pediatrics at Columbia, Neonatology at Stanford, and Clinical Informatics at Harvard. Additionally, he completed a fellowship in Value-Based Healthcare Design at Stanford. He holds an MS from MIT, Cambridge, and an M.B.B.S from KMC Mangalore, India.

CLINICAL FOCUS

- Neonatal-Perinatal Medicine
- Clinical Informatics
- Health Tech Innovation
- Medical Device Validation

ACADEMIC APPOINTMENTS

- Assistant Professor - University Medical Line, Pediatrics - Neonatology
- Member, Cardiovascular Institute
- Member, Maternal & Child Health Research Institute (MCHRI)

ADMINISTRATIVE APPOINTMENTS

- Reviewer, Fulbright Campus Committee, (2020- present)
- Reviewer, Stanford MD, Pediatrics Residency and Neonatology fellowship admissions, (2019- present)
- Advisor, Stanford Health Innovations & Future Technologies, (2018- present)

HONORS AND AWARDS

- Ray Ng SLAC Cares Science Bowl Volunteer Award, Stanford Linear Accelerator Center/DOE

- R01 (Non-invasive ventilation and perfusion in BPD), NIH (NICHD) [Colorado State, GE Healthcare]
- MCHRI CE Grant 2024, Maternal and Child Health Research Institute, Stanford
- R01 (Non-invasive ventilation/perfusion with EIT), NIH (NIBIB) [Colorado State, GE Research]
- MCHRI CE Grant 2022, Maternal and Child Health Research Institute, Stanford
- SBIR Phase 2 (R44) Grant - Novel NG Tube, NIH (NICHD) [Gravitas/Theranova]
- SBIR Phase 1 (R43) Grant - Non-invasive BP sensor, NIH (NICHD) [Pyrames]
- MCHRI CE Grant 2020, Maternal and Child Health Research Institute, Stanford
- Moskowitz Scholar, Mayo Clinic
- Artificial Intelligence in Medicine and Equity Grant, Robert Wood Johnson Foundation & Stanford, Department of Medicine
- Marshall Klaus Perinatal Award, American Academy of Pediatrics
- Innovators in General Pediatrics, Packard Foundation
- mHealth platform for Maternal/Child Health Grant, .
- CATCH Grant, American Academy of Pediatrics
- MIT $50/100K Entrepreneurship Competition, Winner, MIT, Cambridge

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- NIH SBIB Review Panel, NIH (2021 - 2024)
- NSF Medical Devices Review Panel, NSF (2023 - present)

PROFESSIONAL EDUCATION

- Board Certification: Neonatal-Perinatal Medicine, American Board of Pediatrics (2020)
- Board Certification, American Board of Pediatrics , Pediatrics
- Board Certification, American Board of Preventive Medicine , Clinical Informatics
- Fellowship, Stanford University , Healthcare Design
- Fellowship, Stanford University School of Medicine, Palo Alto, CA , Neonatology (2018)
- Fellowship, Harvard Medical School - Massachusetts General Hospital, Boston, MA , Biomedical Informatics
- Residency, Columbia University Medical Center, New York, NY , Pediatrics
- MS, Massachusetts Institute of Technology , Biological Engg/Toxicology
- MBBS, Kasturba Medical College, India , Medicine, Surgery

COMMUNITY AND INTERNATIONAL WORK

- India NeoDesign Network

PATENTS

- "United States Patent 8999242 Method and apparatus for monitoring alteration of flow characteristics in a liquid sample", Apr 7, 2015
- "United States Patent US20100000862A1 Integrated Blood Glucose Measurement Device", Apr 30, 2014
- "United States Patent US20100249965A1 Integrated Blood Glucose Measurement Device", May 1, 2009
- "United States Patent US20100000862A1 Integrated Blood Glucose Measurement Device", Jul 7, 2008

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Wearable senors, unobtrusive vital sign monitoring, natural language processing/text mining

PROJECTS

- Non-invasive continuous BP monitoring using wearable sensors - Lucile Packard Children's Hospital
- NICU of the Future (unobtrusive neonatal sensing)

Publications

PUBLICATIONS

- **A novel neonatal feeding tube with real time placement guidance.** *Scientific reports*
  Rao, A., Jain, J., Green, G., Sutaria, S., Bucci, L., Burnett, D.
  2025; 15 (1): 34122
- **Computational fluid dynamics study of respiratory mask for neonatal resuscitation.** *Computer methods in biomechanics and biomedical engineering*
  Corda, J. V., Shenoy, B. S., Ahmad, K. A., Lewis, L., Prakashini, K., Rao, A., Khader, S. M., Zuber, M.
  2024: 1-10
- **Comparison of microparticle transport and deposition in nasal cavity of three different age groups.** *Inhalation toxicology*
  Valerian Corda, J., Shenoy, B. S., Ahmad, K. A., Lewis, L., K, P., Rao, A., Zuber, M.
  2024: 1-13
- **Clinical Study of Continuous Non-Invasive Blood Pressure Monitoring in Neonates.** *Sensors (Basel, Switzerland)*
  Rao, A., Eskandar-Afshari, F., Weiner, Y., Billman, E., McMillin, A., Sella, N., Roxlo, T., Liu, J., Leong, W., Helfenbein, E., Walendowski, A., Muir, A., Joseph, et al
  2023; 23 (7)
- **Optimal neuromonitoring techniques in neonates with hypoxic ischemic encephalopathy.** *Frontiers in pediatrics*
  Chock, V. Y., Rao, A., Van Meurs, K. P.
  2023; 11: 1138062
- **Micro- and nanoparticle transport and deposition in a realistic neonatal and infant nasal upper airway** *INTERNATIONAL JOURNAL OF MODELLING AND SIMULATION*
  Corda, J., Shenoy, B., Ahmad, K., Lewis, L., Prakashini, K., Rao, A., Zuber, M.
  2023
- **Clinical decision support in the neonatal ICU.** *Seminars in fetal & neonatal medicine*
  Rao, A., Palma, J.
  2022: 101332
- **Advances in Non-Invasive Blood Pressure Monitoring.** *Sensors (Basel, Switzerland)*
  Quan, X., Liu, J., Roxlo, T., Siddharth, S., Leong, W., Muir, A., Cheong, S., Rao, A.
  2021; 21 (13)
- **Influence of enteral feeding and anemia on tissue oxygen extraction after red blood cell transfusion in preterm infants.** *Transfusion*
  Goldstein, G. P., Rao, A. n., Ling, A. Y., Ding, V. Y., Chang, I. J., Chock, V. Y.
  2020
- **Textile Based Sensing Blanket for ECG Monitoring in the Intensive Care Unit**
  Davis, C. L., Kao, T., Obi, A., Rao, A. V., Stoffel, N., IEEE
  IEEE.2020: 4551–54
- **Liver Failure and Rash in a 6-week-old Girl** *PEDIATRICS IN REVIEW*
  Mediratta, R., Schwenk, H., Rao, A., Chitkara, R.
  2018; 39 (6): 315–U22
- **Comparing two anesthesia information management system user interfaces: a usability evaluation** *CANADIAN JOURNAL OF ANESTHESIA-JOURNAL CANADIEN D ANESTHESIE*
  Wanderer, J. P., Rao, A. V., Rothwell, S. H., Ehrenfeld, J. M.
  2012; 59 (11): 1023-1031

- **Evolution of data management tools for managing self-monitoring of blood glucose results: a survey of iPhone applications.** *Journal of diabetes science and technology*
  Rao, A., Hou, P., Golnik, T., Flaherty, J., Vu, S.
  2010; 4 (4): 949-957
- **Individuals achieve more accurate results with meters that are codeless and employ dynamic electrochemistry.** *Journal of diabetes science and technology*
  Rao, A., Wiley, M., Iyengar, S., Nadeau, D., Carnevale, J.
  2010; 4 (1): 145-150
- **A simple approach for the computation of multiple periodicities in biological time series** *BIOLOGICAL RHYTHM RESEARCH*
  Rao, A. V., Sharma, V. K.
  2002; 33 (5): 487-502