

Sujay Nagaraj

MD/PHD STUDENT · DEPARTMENT OF COMPUTER SCIENCE

University of Toronto

✉ s.nagaraj@mail.utoronto.ca | 🏠 <https://sujaynagaraj.github.io/> | 🐦 @sujnagaraj

Education

University of Toronto

Toronto, Ontario, Canada

PHD COMPUTER SCIENCE

2020 - present

- Advisor: Dr. Anna Goldenberg

University of Toronto

Toronto, Ontario, Canada

DOCTOR OF MEDICINE (MD)

2018 - present

- Completed 2 out of 4 years - currently finishing clinical rotations

Queen's University

Kingston, Ontario, Canada

BSc - HONOURS

2014 - 2018

- Life Sciences Major
- Computer Science Minor

Professional Experience

2023-
present

Visiting PhD Student, University of California - San Diego *Advisor: Dr. Berk Ustun*

2015-2018 **Undergraduate Researcher**, Dept. of Medicine, University of Calgary *Advisor: Dr. Cheryl Barnabe*

Publications

PUBLISHED - SELECTED

Nagaraj, S., Gerych, W., Tonekaboni, S., Goldenberg, A., Ustun, B. and Hartvigsen, T., 2025. Learning from Time Series under Temporal Label Noise. **International Conference on Learning Representations (ICLR)**.

Nagaraj, S., Liu, Y., Calmon, F., Ustun, B., 2025. Regretful Decisions under Label Noise. **International Conference on Learning Representations (ICLR)**.

Nagaraj, S., Goodwin, A., Greer, R. W., Eytan, D., Goodfellow, S. D., Jayarajan, A., Goldenberg, A., Mazwi, M. L., 2024. Needles in Needle Stacks: Meaningful Clinical Information Buried in Noisy Waveform Data. **Machine Learning for Healthcare (MLHC)**

Nagaraj, S., Goodday, S., Hartvigsen, T., Boch, A., Garg, K., Gowda, S., Foschini, L., Ghassemi, M., Friend, S. and Goldenberg, A., 2023. Dissecting the heterogeneity of “in the wild” stress from multimodal sensor data. **nPJ Digital Medicine**, 6(1), p.237.

Singh, D., **Nagaraj, S.**, Daniel, R., Flood, C., Kulik, D., Flook, R., Goldenberg, A., Brudno, M. and Stedman, I., 2023. The promises and challenges of clinical AI in community paediatric medicine. **Paediatrics & Child Health**, 28(4), pp.212-217.

Singh, D., **Nagaraj, S.**, Mashouri, P., Drysdale, E., Fischer, J., Goldenberg, A. and Brudno, M., 2022. Assessment of machine learning-based medical directives to expedite care in pediatric emergency medicine. **JAMA Network Open**, 5(3), pp.e222599-e222599.

Ehrmann, D.E., Gallant, S.N., **Nagaraj, S.**, Goodfellow, S.D., Eytan, D., Goldenberg, A. and Mazwi, M.L., 2022. Evaluating and reducing cognitive load should be a priority for machine learning in healthcare. **Nature Medicine**, 28(7), pp.1331-1333.

Nagaraj, S., Harish, V., McCoy, L.G., Morgado, F., Stedman, I., Lu, S., Drysdale, E., Brudno, M. and Singh, D., 2020. From clinic to computer and back again: practical considerations when designing and implementing machine learning solutions for pediatrics. **Current Treatment Options in Pediatrics**, 6, pp.336-349.

McCoy, L.G., **Nagaraj, S.**, Morgado, F., Harish, V., Das, S. and Celi, L.A., 2020. What do medical students actually need to know about artificial intelligence?. **nPJ digital medicine**, 3(1), p.86.

IN SUBMISSION

Nagaraj, S., Rabinowicz, R., Goodday, S., Brunga, L., Korenblum, C., Kim, R., Goldenberg, A., Malkin, D., Friend, S., 2024. A real-world Clinical Deployment of Digital Health Tools in Families with Cancer Predisposition. Under Submission to Lancet Digital Health.

Awards, Fellowships, & Grants

2022-2024	Vanier PhD Award , Canadian Institutes of Health Research (CIHR) <i>Nationally Ranked 7/178</i>	\$ 150,000
2022	Mr. Robert and Ms. Francine Ruggles Innovation Award , University Toronto	\$ 50,000
2022	CGS Doctoral Award - declined , Canadian Institutes of Health Research (CIHR)	\$ 90,000
2021	SickKids Restrcomp PhD Award , The Hospital for Sick Children	\$ 130,000
2021	Ontario Graduate Scholarship , Government of Ontario	\$ 15,000
2014-2018	Chancellor's Scholarship , Queen's University	\$ 36,000

Presentations

INVITED TALKS

Spring 2024. *Dissecting the Heterogeneity of in-the-wild Stress*. Invited talk: Big Data Institute - Oxford University, Oxford, United Kingdom.

CONTRIBUTED PRESENTATIONS

Nagaraj, S., Hartvigsen, T., Boch, A., Foschini, L., Ghassemi, M., Goodday, S., Friend, S., Goldenberg, A. Dissecting In-the-Wild Stress from Multimodal Sensor Data. *Learning from Time Series for Health Workshop, NeurIPS*. December, 2022.

Nagaraj, S., Goodwin, A., Greer, R. W., Eytan, D., Goodfellow, S. D., Jayarajan, A., Goldenberg, A., Mazwi, M. L. 2022. Improving quality of care in critically ill children by real-time detection of bedside interventions using physiological waveforms and deep learning. *Symposium on Artificial Intelligence for Learning Health Systems*. Abstract. Hamilton, Bermuda.

Nagaraj, S., Goodwin, A., Greer, R. W., Eytan, D., Goodfellow, S. D., Jayarajan, A., Goldenberg, A., Mazwi, M. L., 2019. A novel approach to machine learning-based automated vascular catheter access detection in a paediatric critical care setting. *Joint Paediatric Critical Care International Meeting* – Oral Presentation. London, England.

Teaching Experience

Fall 2023	CSC2541: Machine Learning for Health (Graduate) , Head Teaching Assistant	University of Toronto
Winter 2023	CSC108: Introduction to Computer Programming (Undergraduate) , Teaching Assistant	University of Toronto

Research Experience

University of California (San Diego) - Dept. of Computer Science

San Diego, CA (Remote)

SUPERVISOR: DR. BERK USTUN

Oct. 2023 - Present

- Empirical and theoretical characterization of individual-level uncertainty in classification under label noise - collaboration with Yang Liu (UCSC) and Flavio Calmon (Harvard).

University of Toronto - Dept. of Computer Science

Toronto, ON

ADVISOR: DR. ANNA GOLDENBERG

2019-present

- PhD Thesis: "Reconciling with noise in machine learning for health."

The Hospital for Sick Children (SickKids)

Toronto, ON

SUPERVISORS: DR. MJAYE MAZWI AND DR. SEBASTIAN GOODFELLOW

2019-present

- Development and deployment of machine-learning models in the Critical Care Unit.

Outreach & Professional Development

SERVICE AND OUTREACH

- 2023 **ML4H Conference**, Organizing Committee
- 2022-2023 **Community of Support**, Mentor for under-represented applicants to Computer Science
- 2023 **Calgary Youth Science Fair**, Volunteer Judge
- 2022 **Techfugees**, Mentor - 1:1 mentoring, tutoring, skill-building for Syrian Refugees
- 2019-2020 **Wilderness Medicine Society**, Co-Lead

DEVELOPMENT

Program Chair - Time Series for Health Workshop @ ICLR 2024: <https://timeseriesforhealth.github.io/>

PEER REVIEW

FACCT 2024 Program Committee

Time Series 4 Health @ NeurIPS 2022 Program Committee