Raghav Gnanasambandam

PhD Candidate · ISE

Virginia Tech, Blacksburg, VA

raghavg@vt.edu | raghavg97.github.io | raghavg97 | raghav-g

Education

Virginia Tech *Blacksburg, VA*

PhD in Industrial and Systems Engineering *Aug 2019 - present*

- Manufacturing Systems Engineering Track
- Advisor: Dr. Zhenyu (James) Kong

IIT Madras *Chennai, India*

Dual Degree (B.Tech & M.Tech) in Mechanical Engineering *Aug 2014 - May 2019*

- Specialization: Intelligent Manufacturing
- Minor: Material Sciences
- Advisor: Dr. Arunachalam N

Awards & Fellowships

2022	**Finalist**, INFORMS QSR Data Challenge	
2022	**Winner**, IISE QCRE-Process Miner Industrial Data Challenge	*$ 2,000*
2022	**Travel Award** , ISE at Virginia Tech	*$ 1,000*
2019-2020	**Graduate Fellowship**, ISE at Virginia Tech	

Publications

Published

Bo Shen, **Raghav Gnanasambandam**, Rongxuan Wang, Zhenyu (James) Kong. 2022. Multi-task Gaussian process upper confidence bound for hyperparameter tuning and its application for simulation studies of additive manufacturing. *IISE Transactions*, DOI: 10.1080/24725854.2022.2039813.

Akhil V, **Raghav Gnanasambandam**, N Arunachalam, DS Srinivas. 2020. Image data-based surface texture characterization and prediction using machine learning approaches for additive manufacturing. *Journal of Computing and Information Science in Engineering* 20 (2), 021010.

Akhil V, N Arunachalam, **Raghav Gnanasambandam**, DS Srinivas. 2020. Surface texture characterization of selective laser melted Ti-6Al-4V components using fractal dimension and lacunarity analysis. *Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture*. November 2020. doi:10.1177/0954405420971081 .

In Review

Raghav Gnanasambandam, Bo Shen, Andrew Chung Chee Law, Zhenyu (James) Kong. Deep Gaussian Process Upper Confidence Bound for Optimizing Non-Stationary Functions and its Application in Additive Manufacturing. *IISE Transactions*. 2022. First round of Revision.

Raghav Gnanasambandam, Bo Shen, Jihoon Chung, Xubo Yue, Zhenyu (James) Kong. Self-scalable Tanh (Stan): Accelerated Convergence and Better Generalization of Physics-informed Neural Networks. arXiv preprint arXiv:2204.12589 (2022). Submitted to *IEEE Transactions on Pattern Analysis and Machine Intelligence*.
- **Winner** of IISE QCRE-Process Miner Industrial Data Challenge 2022.

Presentations

Talks

October 2022. *Self-scalable Tanh (Stan): Faster Convergence and Better Generalization in Physics-informed Neural Networks*. 17th Data Mining and Decision Analytics Workshop, Indianapolis, IN.

October 2022. *Deep Gaussian Process Upper Confidence Bound for Optimizing Non-stationary Functions and Its Application in Additive Manufacturing*. Invited Talk: INFORMS Annual Meeting, Indianapolis, IN.

October 2022. *Physics-informed Machine Learning for Additive Manufacturing*. Invited Talk: INFORMS Annual Meeting, Indianapolis, IN.

May 2022. *Physics Informed Neural Networks for Additive Manufacturing*. Invited Talk: IISE Annual Meeting, Seattle, WA.

October 2021. *Bayesian Optimization for Additive Manufacturing*. Invited talk: INFORMS Annual Meeting, Anaheim, CA.

Posters

October 2022. *Self-scalable Tanh (Stan) activation for Physics-informed Neural Networks*. 17th Data Mining and Decision Analytics Workshop & INFORMS QSR Poster Session, Indianapolis, IN.

May 2022. *Self-scalable Tanh (Stan) activation for Physics-informed Neural Networks*. IISE-QCRE Student Interaction and Poster Session, Seattle, WA.

Teaching Experience

Spring '21	**ISE 3004 Industrial Cost Control**, Graduate Teaching Assistant	*Virginia Tech*
Fall '19 & Fall '20	**ISE 3214 Facilities & Logistics**, Graduate Teaching Assistant	*Virginia Tech*
Spring '20	**ISE 2214 Manufacturing Processes Lab**, Lab Instructor	*Virginia Tech*
Spring '19	**ME 2400 Measurement, Instrumentation and Control**, Teaching Assistant	*IIT Madras*
Fall '18	**ME 2050 Machine Drawing Practice**, Lab Instructor	*IIT Madras*

Service

2022-2023	**Graduate Student Ambassador**, Graduate School	*Virginia Tech*
2021-2022	**Graduate Student Mentor**, ISE Department	*Virginia Tech*
2022	**Research Poster Judge**, Undergraduate Poster Competition	*Virginia Tech*
2021	**Student Volunteer**, ISE Senior Symposium	*Virginia Tech*
2020-2021	**Secretary**, Society of Manufacturing Engineers	*Virginia Tech*

Professional Memberships

Student Member, Institute of Industrial and Systems Engineers (IISE).
Student Member, Institute for Operations Research and the Management Sciences (INFORMS).

Peer Review

IEEE Transactions on Automation Science and Engineering