Rama K. Vasudevan, Ph.D.
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Education

The University of New South Wales	Nanotechnology	B.Sc. Hons, 2010
The University of New South Wales	Materials Science	Ph.D., 2013

Job History

2022-Present	Group Leader, Data NanoAnalytics, Center for Nanophase Materials Sciences
2020-Present	R&D Staff, Center for Nanophase Materials Sciences
2016-2020	Research and Development Associate, Scanning Probe Microscopy Group, Center for Nanophase Materials Sciences, Oak Ridge National Laboratory.
2013-2015	Postdoctoral Research Associate in Scanning Probe Microscopy Group, Center for Nanophase Materials Sciences, Oak Ridge National Laboratory (ORNL).

Professional and Synergistic Activities

2023	Co-Organizer, "Autonomous Characterization and Synthesis" as part of the CNMS 2023 User Meeting Workshop
2023	Co-Chair, Materials Research Data Network (MaRDA) Annual Meeting, February 21-23
2022	Symposium Organizer, International Materials Research Congress, Cancun ("AI-enabled advances in materials imaging, automation, and analysis") Materials breakout lead, Advanced Research Directions on AI for Science and Security Workshop, Nashville TN June 14-16
2021	Workshop organizer (Machine Learning and Automated Experiments in Scanning Probe Microscopy Virtual School)
2021	Symposium organizer, MRS Fall Meeting, "Accelerating Materials Characterization, Modeling, and Discovery by Physics-Informed Machine Learning") Symposium Organizer, International Materials Research Congress, Cancun ("AI-enabled advances in materials imaging and analysis")
2020	Editor for special topic issue of Journal of Applied Physics on Machine learning for materials design and discovery, Workshop organizer (AI for Atoms: How to Machine Learn STEM, 2020)
2019	DOE Scientific User Facilities AI Roundtable writing team/participant
2019-Present	Editorial Board member, Machine Learning: Science and Technology (IOP Journal)
2017-2018	PFM Workshop organizer (ISAF-PFM 2017); Tutorial Instructor (Materials Research Society March Meeting, Phoenix AZ 2017), Workshop organizer (Microscopy and Microanalysis 2018, and CNMS User Workshop)
2012-Present	Reviewer for *Nature*, *J. Mat. Chem. C, J. Appl. Phys., App. Phys. Lett., Nanoscale, 2D Materials, npj Computational Materials, and many more.*

Proposals/Grants

2024-2026	DOE Biopreparedness (BRAVE) Proposal – Co-PI ($4M/yr)
2021-Present	INTERSECT Initiative AutoFlow(s) Proposal – Co-PI ($500K/yr)
2016-2022	*DOE BES MSED FWP (Probing Polar Orderings)* - Co-PI (~$900K/yr)
2019-2020	*ORNL AI Initiative* (Reinforcement Learning/Materials Lead) – Co-PI ($~2M/yr)
2018	ORNL LDRD Proposal: "*Deep learning for solving inverse problems in imaging and multi-spectral data*" – PI (~$270k)

Honors and Awards

2023	R&D100 Award: "Physics-Informed, Active Learning–Driven Autonomous Microscopy for Science Discovery"
2022	American Physical Society Fellow, citation for "*pioneering and visionary development of open-sourced physics-based machine learning methods in atomic-scale and mesoscopic imaging, and their application in physics*"
2022	ORNL Award for Outstanding Scholarly Output
2019	MicroscopyToday Innovation Award
2015	ORNL Postdoctoral Researcher award

Patents

2023	"Science-Driven Automated Experiments", Provisional Patent applied
2022	"Pan-sharpening for microscopy", Patent Granted US Patent # US-11313878-B2

Research Highlights

- Authored or co-authored over 150 peer-reviewed publications/h-index 38/5000+ citations
- Delivered 40+ invited talks at major international conferences including Materials Research Society, American Physical Society, Gordon Research Conference, etc.
- Maintainer of pycroscopy ecosystem of python packages (github.com/pycroscopy)