Biographical Sketch of Arunasalam Rahunanthan

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Professional Preparation

University of Peradeniya, Sri Lanka	Computer Sciences, B.Sc. Engineering, 2001
University of Wyoming	Mathematics, Ph.D., 2009
University of Wyoming	Mathematical Modeling of Multi-Phase Flows, Postdoctoral Research Scientist, 2009 – 2012

Professional Experience

- 08/2019 – present: Chair, Dept. of Mathematics and Computer Science, Central State University

- 08/2018 – present: Associate Professor, Dept. of Mathematics and Computer Science, Central State University, Wilberforce, Ohio

- 01/2015 – 08/2018: Assistant Professor, Dept. of Mathematics and Computer Science, Central State University, Wilberforce, Ohio

- 08/2014 – 01/2015: Visiting Assistant Professor, Dept. of Mathematics and Statistics, University of Toledo, Toledo, Ohio

- 08/2013 – 08/2014: Instructor, Dept. of Mathematics and Computer Science, Edinboro University of Pennsylvania, Edinboro, Pennsylvania

- 08/2012 – 08/2013: Visiting Assistant Professor, Dept. of Mathematics and Statistics, University of Toledo, Toledo, Ohio

- 02/2009 – 08/2012: Postdoctoral Research Scientist, Dept. of Mathematics and School of Energy Resources, University of Wyoming, Laramie, Wyoming

- 01/2005 – 02/2009: Graduate Assistant, Dept. of Mathematics, University of Wyoming, Laramie, Wyoming

- 09/2002 – 01/2005: Engineer/Senior Engineer, Dept. of Management of Information Systems, Celetronix, Sri Lanka

- 12/2001 – 09/2002: Instructor, Dept. of Engineering Mathematics, University of Peradeniya, Sri Lanka

Grants

- A. Rahunanthan, co-PD, "A scholarship program at Central State University to increase graduates in agriculture and related fields," USDA NIFA Scholarships for Students at 1890 Institutions Program, Amount: $ 2,250,000, Period: April 2020 – March 2024 (PD: A. Johnson, co-PDs: J. Henry, I. Katampe and S. Krishna)

- A. Rahunanthan, PD at CSU, "Ohio West Consortium on Additive and Robotic Manufacturing, " Ohio Department of Higher Education – Regionally Aligned Priorities in Delivering Skills (RAPIDS IV), Lead Institution: Wright State University, Amount: $107,270 Period: April 2020 – June 2022

- A. Rahunanthan, PD at CSU, "Center for Virtual and Cyber-Physical Systems," Ohio Department of Higher Education – RAPIDS III, Lead Institution: Wright State University, Amount: $ 96,854, Period: October 2018 – December 2020.

- A. Rahunanthan, PD at CSU, "Center for Continuous Cybersecurity Education & Training ," Ohio Department of Higher Education – RAPIDS II, Lead Institution: Wright State University, Amount: $ 41,966, Period: November 2017 – November 2019.

- A. Rahunanthan, PI,"Uncertainty Quantification of MultiPhase Porous Media Flows on GPUs," National Science Foundation, Research Initiation Award, Amount: U$ 299,208, Period: June 2016 – May 2021.

Awards and Honors

- Nominee for Outstanding Faculty Researcher, Central State University, 2020

- Center for the Advancement of STEM Leadership (CASL) Fellow, 2019-2020

- Scientific Teaching Fellow, Summer Institute on Scientific Teaching at Central State University, 2018-2019

- Southwestern Ohio Council for Higher Education Faculty Excellence Award, 2017

- Nominee for Outstanding PhD Dissertation Award, University of Wyoming, 2010

Synergistic Activities

- Apple's HBCU C2 Educator, 2020-21

- Reviewer - Journal of Computational and Applied Mathematics, International Journal for Numerical Methods in Fluids, Journal of Mathematics and Computers in Simulation, Engineering Mathematics Letters

- Member - International Society for Porous Media (InterPore), American Mathematical Society (AMS), Society for Industrial and Mathematics (SIAM), Institute of Electrical and Electronics Engineers (IEEE), Institution of Engineers, Sri Lanka (IESL)

- Chair - Internal Computer Science Program Review Committee at CSU, Spring 2019; Internal Mathematics Program Review Committee at CSU, Spring 2017

- Judge - NSF's Emerging Researchers National Conference in STEM, 2017 and 2018

Peer-reviewed Journals

- A. Mamun, J. Barber, V. Ginting, F. Pereira, and A. Rahunanthan (2020), Contaminant Transport Forecasting in the Subsurface Using a Bayesian Framework, Journal of Applied Mathematics and Computation, https://doi.org/10.1016/j.amc.2019.124980

- V. Ginting, F. Pereira, and A. Rahunanthan (2015), Multi-Physics Markov Chain Monte Carlo Methods for Subsurface Flows, Mathematics and Computers in Simulation, Vol. 118, pp. 224 - 238

- V.U. Karthik, S. Sivasuthan, A. Rahunanthan, R.S. Thyagarajan, P. Jayakumar, L. Udpa, and S.R.H. Hoole (2015), Faster, more accurate, parallelized inversion for shape optimization in electroheat problems on a graphics processing unit (GPU) with the real-coded genetic algorithm, COMPEL: The International Journal for Computation and Mathematics in Electrical and Electronic Engineering, Vol. 34, Issue 1, pp. 344 - 356

- S.R.H. Hoole, V.U. Karthik, S. Sivasuthan, A. Rahunanthan, R.S. Thyagarajan, and P. Jayakumar (2015), Finite elements, design optimization, and nondestructive evaluation: A review in magnetics, and future directions in GPU-based, element-by-element coupled optimization and NDE, International Journal of Applied Electromagnetics and Mechanics, Vol. 47, pp. 607 - 627

- S. Sivasuthan, V.U. Karthik, A. Rahunanthan, P. Jayakumar, R.S. Thyagarajan, L. Udpa, and S.R.H. Hoole (2015), Addressing Memory and Speed Problems in Nondestructive Defect Characterization: Element-by-Element Processing on a GPU, Journal of Nondestructive Evaluation, Vol. 34, Issue 2, pp. 1-9.

- S. Sivasuthan, V.U. Karthik, A. Rahunanthan, P. Jayakumar, R.S. Thyagarajan, L. Udpa and S.R.H. Hoole (2014): A Script-Based, Parameterized Finite Element Mesh for Design and NDE on a GPU, IETE Technical Review, Vol. 32, Issue 2, pp. 94 – 103

- S.R.H. Hoole, V.U. Karthik, S. Sivasuthan, A. Rahunanthan, R.S. Thyagarajan, and P. Jayakumar (2014), Electromagnetic Device Optimization: The Forking of Already Parallelized Threads on Graphics Processing Units, Applied Computational Electromagnetics Society Journal, Vol. 29, Issue 9, pp. 677-684

- A. Rahunanthan, F. Furtado, D. Marchesin, and M. Piri (2014), Hysteretic Enhancement of Carbon Dioxide Trapping in Deep Aquifers, Computational Geosciences, Vol. 18, Issue 6, pp. 899-912

- V. Ginting, F. Pereira, and A. Rahunanthan (2014), A Prefetching Technique for Prediction of Porous Media Flows, Computational Geosciences, Vol. 18 (5), pp. 661-675

- V. Ginting, F. Pereira, and A. Rahunanthan (2014), Rapid Quantification of Uncertainty in Permeability and Porosity of Oil Reservoirs for Enabling Predictive Simulation, Mathematics and Computers in Simulation, Vol. 99, pp. 139-152

- V. Ginting, F. Pereira, and A. Rahunanthan (2013), A Multi-stage Bayesian Prediction Framework for Subsurface Flows, International Journal for Uncertainty Quantification, Vol. 3, Issue 6, pp. 499-522

- F. Pereira, and A. Rahunanthan (2011), A Semi-discrete Central Scheme for the Approximation of Two-phase Flows in Three Space Dimensions, Mathematics and Computers in Simulation, Vol. 81, Issue 10, pp. 2296-2306

- A. Rahunanthan, and D. Stanescu (2010), High-order W-methods, Journal of Computational and Applied Mathematics, Vol. 233, Issue 8, pp. 1798-1811

- A. Rahunanthan, and D. Stanescu (2009), Stable Interface Conditions for Discontinuous Galerkin Approximations of Navier-Stokes Equations, Journal of Scientific Computing, Vol.41, Issue 1, pp. 118-138

- S. R. H. Hoole, A. Rahunanthan, T. Sivapriya, and S. Sutharsan (2003), MacLean's Model of Flux Penetration: Addressing Stability, Magnetics, IEEE Transaction, Vol.39, Issue 3, pp. 1187-1190

Peer-reviewed Conference Proceedings

- A. Ali, A. Al-Mamun, F. Pereira, A, Rahunanthan (2020), Markov Chain Monte Carlo Methods for Fluid Flow Forecasting in the Subsurface. In: Krzhizhanovskaya V. et al. (eds) Computational Science – ICCS 2020, Lecture Notes in Computer Science, vol 1214, Springer, Cham

- A. Mamun, F. Pereira, and A. Rahunanthan (2018), Convergence analysis of MCMC methods for subsurface flow problems. In Osvaldo Gervasi et al. (eds), Computational Science and Its Applications – ICCSA 2018, pages 305–317, Springer, Cham

- V. Ginting, F. Pereira, and A. Rahunanthan (2012), Multiple Markov Chains Monte Carlo Approach for Flow Forecasting in Porous Media, Procedia Computer Science, Vol. 5 , pp. 707-716

- V. Ginting, F. Pereira, and A. Rahunanthan (2012), Forecasting Production in an Oil Reservoir Simulation and Its Challenges, Proceedings of ENUMATH 2012, the 9th European Conference on Numerical Mathematics and Advanced Applications, Leicester - United Kingdom, September 2011 (A. Cangiani et al., eds.), Springer