Dixon Vimalajeewa

Postdoctoral Researcher
Department of Statistics
Texas A&M University
College Station, Texas

Email: vimalajeewaruh@gmail.com
Google Scholar
ResearchGate

APPOINTMENTS

- **Postdoctoral researcher**, Department of Statistics, Texas A&M University, College Station, Texas, USA (Aug 2021 - present)

- **Postdoctoral researcher**, South East Technological University, Ireland (Mar 2020 - Aug 2021)

- **Assistant Lecture**, School of Business, South East Technological University, Ireland (Jan 2020- May 2020).

- **Experienced Software Research Engineer**, Walton Institute, Ireland (Jan 2020 - Feb 2020)

- **Lecturer in Mathematics**, University of Sri Jayewardhenapura, Sri Lanka (Mar 2013 - Aug 2013)

- **Instructor in Mathematics**, University of Ruhuna, Sri Lanka (Febr 2012 - Mar 2013)

RESEARCH INTERESTS

Wavelets-based Signal Processing, Distributed Computing, Machine Learning, Mathematical Modelling, Internet of Things.

EDUCATION

- **PhD in Computer Science**, South East Technological University (SETU), 2020.

    - Dissertation: Distributed Learning and Data Processing for Smart Farming.
    - Advisors: Prof. Sasitharan Balasubramaniam and Prof. Donagh P. Berry.
    - Courses: Big Data Analytics and Deep Neural Network in Python.

- **MSc (Technology)** in Computational Engineering, Lappeenranta University of Technology (LUT), Finland, 2015.

    - Dissertation: Parameter Identification in Time Series Models.
    - Supervisors: Prof. Marko Linen and Prof. Heikki Haario.
    - Courses: Statistical Analysis in Modeling, Design of Experiments, Stochastic Theory and Models, Membrane Technology, Modeling Methodology in Process Engineering, Fuzzy Engineering and data analysis.

- **BSc (First Class Honours)** in Mathematics and Statistics, University of Ruhuna, Sri Lanka, 2012.

- Dissertation: Non-parametric Kennel Smoothing Technique with Boundary Correction Methods for Regression Analysis.
- Courses: Mathematics, Statistics, & Computer Science.

RESEARCH PROPOSALS AND GRANTS

- **Association between Hypertension and Food Insecurity in Adults** (OMB No. 0920-1363) grant for working with NCHS Research Data Center (a joint proposal with Baylor College Medicine, Houston), 2023.

- **EU-US Collaboration on Next Generation Explorers** (Call ID: H2020-ICT-31-2018 and grant ID: 825183) grant for working with the Iowa State university for three months (amount founded-15,000 euro)

- **FOOD 2030** - Empowering cities as agents of food system transformation (ID: CE-FNR-07-2020), which falls under the umbrella of H2020-FNR-2020: Food and Natural Resources (amount founded12M euro).

RESEARCH PROJECT EXPERIENCE

- **Blockchain-based knowledge transfer platform for carbon-neutralized agriculture**, Iowa State University, March - July 2021.

- **Mathematical framework for personalizing food consumption**, Science Foundation Ireland funded VistaMilk project, Walton Institute, South East Technological University, Jan 2020 - present.

- **Distributed data processing for smart farming**, Science Foundation Ireland funded Precision Dairy project, Walton Institute, South East Technological University, Oct 2016 - 2019

RESEARCH PUBLICATIONS

Peer-Reviewed Articles

- Jongphil Kim, **Dixon Vimalajeewa**, and Brani Vidakovic, Analysis and Classification of ^{1}H-NMR Spectra by Multifractal Analysis, *PLOS One*, 2023 (accepted and to be appear soon).

- **Dixon Vimalajeewa**, Ethan McDonald, Magan Tung, Brani Vidakovic, Parkinson's Disease Diagnosis With Gait Characteristics Extracted Using Wavelet Transforms, *IEEE Journal of Translational Engineering in Health and Medicine*, vol. 11, pp. 271-281, 2023.

- **Dixon Vimalajeewa**, Scott Alan Bruce, Brani Vidakovic, Early Detection of Ovarian Cancer by Wavelet Analysis of Protein Mass Spectra. *Statistics in Medicine*, 2023.

- **Dixon Vimalajeewa**, Ethan McDonald,, Scott Alan Bruce, Brani Vidakovic, Wavelets-based approach for diagnosing Attention Deficit Hyperactivity Disorder (ADHD), *Nature Scientific Reports*, 2022.

- **Dixon Vimalajeewa**, Sasitharan Balasubramaniam, Donagh. P Berry, Gerald Barry, Virus particle propagation and infectivity along the respiratory tract and a case study for SARS-CoV-2, *Nature Scientific Reports*, vol. 12, 2022, doi: 10.1038/s41598-022-11816-2, 2022.

- **Dixon Vimalajeewa**, Sasitharan Balasubramaniam, Donagh P Berry, Chamil Kulatunga, A Service-based Joint Model Used for Distributed Learning: Application for Smart Agriculture, *IEEE Transactions on Emerging Topics in Computing*, vol. 10, no. 2, pp. 838-854, 2022, doi: 10.1109/TETC.2020.3048671.

- **Dixon Vimalajeewa**, Chamil Kulatunga, Brendatte O'Brien, Donagh P Berry, Leveraging Social Network Analysis for Evaluating Animal Cohesion. *IEEE Transactions on Computational Social Systems*, vol. 6, no. 2, pp. 323-337, 2019, doi: 10.1109/TCSS.2019.2902456.

- **Dixon Vimalajeewa**, Chamil Kulatunga, Donagh P. Berry, Learning in the compressed data domain: Application to milk quality prediction, *Elsevier Journal of Information Sciences*, vol. 459, pp. 149-167, 2018, 10.1016/j.ins.2018.05.002.

- Chamil Kulatunga, Kriti Bhargava, **Dixon Vimalajeewa**, Stephan Ivanov, Cooperative In-network Computation in Energy Harvesting Device Clouds, *Sustainable Computing: Informatics and Systems*, vol. 16, pp. 106-116, 2017, 10.1016/j.suscom.2017.10.006.

Conference Proceedings

- **Dixon Vimalajeewa**, Sasitharan Balasubramaniam, Digestive system dynamics in molecular communication perspectives, *In: Nakano, T. (eds) Bio-Inspired Information and Communications Technologies. BICT 2021, Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering*, vol. 403, pp. 117-133, 2021, Japan, 2021, doi: 10.1007/978-3-030-92163-710.

- Caio Fonseca, **Dixon Vimalajeewa**, Daniel P Martins, Deep Learning-based Voting System Model for Blind Bit Detection in Bacteria-based Molecular Communications Systems, *Data Competition - ACM NanoCom*, 2021.

- **Dixon Vimalajeewa**, Eric Robson, Donagh P Berry, Chamil Kulatunga, Evaluation of Non-linearity in MIR Spectroscopic data for Compressed Learning , High Dimensional Data Mining (HDM) Workshop, *IEEE Conference on Data Mining , New Orleans, USA, (ICDM 2017)*, pp. 545-553, 2017, doi: 10.1109/ICDMW.2017.77.

Submitted Articles

- **Dixon Vimalajeewa**, Brani Vidakovic, Gamma-Minimax Wavelet Shrinkage with Three-Point Priors, *arXiv*, 2022 (under review).

- **Dixon Vimalajeewa**, Sasitharan Balasubramaniam, Channel Capacity of Starch and Glucose Molecular Communications in the Small Intestine Digestive Tract, *arXiv*, 2021.ß (under review).

- **Dixon Vimalajeewa**, Subhasis Thakur, John Breslin, Donagh P Berry, Sasitharan Balasubramaniam, Block Chain and Internet of Nano-Things for Optimizing Chemical Sensing in Smart Farming, *arXiv* , 2019 (under review).

TEACHING EXPERIENCES

Texas A&M University Graduate course:

STAT 650 Statistical Foundation for Data Science, Fall 2022.

STAT 689: 602, 701: Statistical Data Science wit hPython, Spring 2023 (distance and in-person course)

South East Technological University, Ireland Graduate course:

Postgraduate Certificate in Business Intelligence, Spring 2020.

University of Sri Jayewardhenapura, Sri Lanka Undergraduate course:

Mathematical tools and concepts for biology , Spring 2013.

University of Ruhuna, Sri Lanka Undergraduate course:

Statistical Inference, Complex Numbers, Linear Algebra, Group Theory, 2012 and 2013.

HONORS AND AWARDS

- **Travel Grant:** ABGOD 2023 Conference at the University of Texas at Dallas, 2023.

- **Data Science Student of the Year:** Finalist of the best data science student of the year, Irish National Data Science Awards, 2018 and 2019.

- **Irish Wash Fellowship:** Awarded from Waterford Institute of Technology for conducting PhD studies , Sep. 2016 - Dec. 2019.

- **MSc full scholarship:** Lappeenranta University of Technology, Finland, Aug. 2013 - May 2015.

- **Wasantha Mohotti Memorial Gold Medal** awarded by Dr. J. E. Mohotti to the graduate who obtained a First Class Honours with the highest aggregate marks in the Bachelor of Science Degree Examination in Physical Science, University of Ruhuna, Sri Lanka, 2012.

- **Mallika De Mel Memorial Gold Medal** awarded by the Ronnie De Mel Trust Fund to the graduate who obtained a First Class Honours with the highest aggregate marks in the Final Examinations leading to the Degree of Bachelor of Science, University of Ruhuna, Sri Lanka, 2012.

- **Professor Isabelle Attali Memorial, CIMPA (International Center for Pure and Applied Mathematics, France) Gold Medal** for the outstanding graduate who scored the highest aggregate marks at the B.Sc. (Special) Degree Examination in Mathematics with First Class (Honours), in the year 2012, awarded by the Educational Support Foundation- Ruhuna Mathematics, University of Ruhuna, Sri Lanka, 2012.

CONFERENCE, WORKSHOPS AND INVITED TALKS

- **A Path to Deal with Complex Datasets**, guest lecture, University of Connecticut-Stamford Campus, March 2023.

- **Diagnosing Attention Deficit Hyperactivity Disorder (ADHD) by Wavelet Analysis of Pupil Diameter**, ABGOD Conference, University of Texas at Dallas, March 2023.

- **Early Detection of Ovarian Cancer by Wavelet Analysis of Protein Mass Spectra**, Conference on Advances in Data Science organized by the Institute for Applied Mathematics and Computational Science, Texas A&M University, October 2022.

- **An instructor for Python at the multi-day Open Source for Open Science workshop**, Fall 2022 At Texas A&M University.

- **Early Detection of Ovarian Cancer by Wavelet Analysis of Protein Mass Spectra**, 14th International Conference of the ERCIM WG on Computational and Methodological Statistics, 15th International Conference on Computational and Financial Econometrics, King's College London, UK, December 2021.

- **Personalizing food to optimize food production and supply chain**, Internal VistaMilk conference, Mar, 2021, Ireland.

- **Distributed Computing and Applications**, Lothar Collatz Seminar, University of Hamburg, Germany, Nov 2020.

- **Federated Learning for Distributed Milk Quality Assessment**, International VistaMilk project review, Ireland Nov. 2020.

- **Societal impact of COVID-19 researchTHEA Colloquium**, Ireland, June, 2020.

- **SARS-Cov-2 Virus Particle Propagation in the Respiratory System**, Annual Research Meeting, University Hospital, Waterford, Ireland, 2020.

- **Evaluation of Non-linearity in MIR Spectroscopic data for Compressed Learning**, High Dimensional Data Mining (HDM) Workshop, IEEE Conference on Data Mining , New Orleans, USA, November 2017.

TECHNICAL SKILLS

- Operating systems: Linux, Mac OS X, Windows

- Programming: MATLAB, Python, R, Java, Latex, Tableau

- Linguistic skills: English and Sinhalese

POSTS' OF RESPONSIBILITY/ EXTRA CURRICULARS

- Reviewer for the IEEE Letters of the Computer Society Journal and IEEE transactions on Mobile Computing (Jan 2020 - present) and Brazilian Mathematical Journal (Aug 2022-present).

- NDRC pre-commercialization training for transforming research idea into a business model, Autumn 2019 – Summer 2020.

- Academic guide for the Career-FiT program to market-focused research centered around the domain areas of healthcare and smart cities integrated with blockchain technology.

- International Student's peer tutor, Lappeenranta University of Technology, Finland, Autumn- 2014 and Spring - 2015.

- Social Media Moderator, Lappeenranta University of Technology, Finland, May 2014 - Sep. 2014.