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HOSSEIN ALI NAROUEI-KHANDAN

PROFESSIONAL SUMMARY

I'm a scientist with a PhD in Plant Disease and Pest Modelling with extensive experience in quantitative modelling, epidemiology, risk assessment, and biosecurity. Proficient in R, Python, ArcGIS, Power BI, and SQL. I excel at data mining, statistical analysis, and developing interactive online tools. With strong leadership, research, and teaching skills, I'm a critical thinker, detail-oriented and dependable team player, capable of managing multiple priorities and taking on added responsibilities, bringing organizational skills and a positive attitude to contribute to team success.

EDUCATION

Lincoln University - Centre of Research Excellence (CORE), New Zealand
Ph.D., Plant Pathology Modeling

Azad University-Science and Research Campus - Tehran, Tehran, Iran
M.Sc. in Plant Pathology, Plant Pathology

WORK HISTORY

SPECIALIST ADVISER 08/2022 to Current
Ministry for Primary Industries

Plants Risk Analysis, Biosecurity New Zealand, Ministry for Primary Industries, Wellington, New Zealand

- Conducting Pest Risk assessment (PRA) and plant pest and pathogens distribution modelling using machine learning algorithms.
- Project lead on different project including risk assessment of cut flower and prunus Importation.
- Employing Feature manipulation Engine (FME) to automate spatial analysis and mapping/modeling plant pests and diseases.
- Using Power BI and R to analyze and streamline risk assessments.
- Mentoring new staff in risk assessment domain.
- Developing organism ranking system based on expert elicitation and Beta Pert distribution.

DATA MODELER 05/2021 to 08/2023
Ministry for Primary Industries

Data Management Team, Mycoplasma bovis Program Biosecurity, Ministry for Primary Industries, New Zealand

- Spearheaded design and execution of interactive online tools to enhance analytical output for MBovis Programme.
- Leveraged advanced skills in R, GIS, and SQL to optimize disease tracing and surveillance data, facilitating more efficient workflows.
- Innovatively developed both static and dynamic GIS Web Applications using FME engine and R Shiny, enhancing user experience and data accessibility

- Conducted space-time pattern mining through cluster analysis and spacetime cube techniques for analysis of Mbovis disease, contributing valuable insights.
- Elevated program effectiveness by fostering collaboration with MBovis Disease Control and Epidemiology team, engaging with Data Analytics specialists across Ministry, industry partners, and academic collaborators.
- Applied statistical and spatial analysis techniques to derive actionable conclusions and improve overall program outcomes.

ACTING MANAGER (DIFFERENT OCCASIONS) 01/2020 to 03/2023
Ministry for Primary Industries

- Developed and maintained relationships with customers and suppliers through account development.
- Maintained professional, organized, and safe environment for employees.
- Resolved staff member conflicts, actively listening to concerns and finding proper middle ground.

SENIOR ADVISER 04/2016 to 05/2021
Ministry for Primary Industries

Plants and Pathways Risk Assessment, Biosecurity Science, Food Science and Risk Assessment Directorate | Regulation and Assurance Branch, Ministry for Primary Industries, Wellington, New Zealand

- Conducted Pest Risk assessment (PRA), Emerging risk system.
- Mentored new staff in risk assessment domain.
- Supplied technical advice to improve risk assessment quality.
- Modeled plant pest and pathogens.
- Developed organism ranking system based on expert elicitation and Beta Pert Distribution algorithm.

POSTDOCTORAL ASSOCIATE 09/2014 to 04/2016
University of Florida

Department of Plant Pathology, Emerging Pathogens Institute (EPI), University of Florida, Gainesville, USA

- Different predictive modeling approaches were used to conduct research on plant diseases and their vectors including modeling of HLB, Potato late blight and blueberry twig blight.
- Teaching assistant in Plant Disease Epidemiology course
- Supervised/mentored PhD and Master students.
- Conducted greenhouse experiments.
- Authored / co-authored seven publications in distinguished journals over course of two years.
- Drafted manuscripts and presented findings at major conferences.
- Taught Plant disease Epidemiology course to 21 students.
- Collaborated with four multidisciplinary team members to accomplish research goals.

LEADERSHIP AND INVOLVEMENT

- Acting Manager, Plant Import Risk Assessment, Animal & Plant Health Directorate, Biosecurity NZ, 01/01/2021
- Selected session Moderator, International Congress of Plant Pathology (ICPP), 01/01/2018
- Session Moderator, American Plant Pathology Society (APS) meeting, 08/01/2015
- Member of the Bio-Protection Research Centre (BPRC) Post-Graduate/Post-Doctoral Committee and IT Specialist, Lincoln University, 01/01/2012
- Member of the organizing committee, Lincoln University Post-Graduate Conference, 01/01/2011

JOURNAL ARTICLES (SELECTED)

GoogleScholar Profile: https://scholar.google.com/citations?user=yXwA9sAAAAAJ&hl=en
ORCiD Profile: https://orcid.org/0000-0002-4218-5934

- The Potential Global Climate Suitability of Kiwifruit Bacterial Canker Disease (*Pseudomonas syringae* pv. *actinidiae* (Psa)) Using Three Modelling Approaches: CLIMEX, Maxent and Multimodel Framework, Climate, 10, 2, 2022, 14, Hossein A. Narouei-Khandan, Susan P. Wormer, Sadi LH Viljanen, Ariena HC van Bruggen, Giorgio M. Balestra, Eirian Jones
- BLIGHTSIM: A New Potato Late Blight Model Simulating the Response of *Phytophthora infestans* to Diurnal Temperature and Humidity Fluctuations in Relation to Climate Change, Pathogens, 9, 8, 2020, 659, H. A. Narouei-Khandan, S. K. Shakya, K. A. Garrett, E. M. Goss, N. S. Dufault, J. L. Andrade-Piedra, ..., A. H. C. van Bruggen.
- Projecting the suitability of global and local habitats for myrtle rust (*Austropuccinia psidii*) using model consensus, Plant Pathology, 2019, H. A. Narouei-Khandan, S. P. Worner, S. L. H. Viljanen, A. H. C. van Bruggen, E. E. Jones
- Bayesian quantification of the fundamental thermal niche of Huanglongbing, a vector-borne pathogen of citrus trees, Journal of Applied Ecology, 2019, Rachel Taylor, Sadie Ryan, Catherine Lippi, David Hall, Hossein Narouei-Khandan, Jason Rohr, Leah Johnson
- Input data needed for a risk model for the entry, establishment and spread of a pathogen (Phomopsis vaccinii) of blueberries and cranberries in the EU, Annals of Applied Biology, 172, 126-147, 2018, A. H. C. van Bruggen, J. S. West, W. van der Werf, R. P. J. Potting, C. Gardi, I. Koufakis, ..., P. Harmon
- Global spatial distribution of blueberry twig blight (*Phomopsis vaccinii*) projected by two species distribution models, Euro J of Plant Pathology, 4, 919-930, 2017, H. A. Narouei-Khandan, C. L. Harmon, P. Harmon, J. Olmstead, V. V. Zelenev, W. van der Werf, ..., A. H. C. van Bruggen.
- Local and regional spread of banana Xanthomonas wilt (BXW) in space and over time in Kagera, Tanzania, Plant Pathology, 2017, M. M. Shimwela, J. K. Blackburn, J. B. Jones, J. Nkuba, H. A. Narouei-Khandan, R. C. Ploetz, F. Beed, ..., A. H. C. van Bruggen.
- Corky root severity, root knot nematode galling and microbial communities in soil, rhizosphere and rhizoplane in organic and conventional greenhouse compartments. Applied Soil Ecology, 100, 112-123. van Bruggen, A. H., Narouei-Khandan, H. A., Gravel, V., & Blok, W. J. (2016). http://dx.doi.org/10.1016/j.apsoil.2015.11.015
- Effects and side effects of penicillin injection in Huanglongbing affected grapefruit trees. Crop Protection. 90: 106-116. Keumchul Shin, Marina S. Ascunce, Hossein A. Narouei-Khandan, Xiaoan Sun, Debra Jones, Fred Kolawole, Erica Goss, and Ariena H.C. van Bruggen (2016). https://doi.org/10.1016/j.cropro.2016.08.025

GRANTS AND AWARDS

- Prestigious **New Zealand Biosecurity Excellence Award**, Dec 2023.
- **Innovation award,** Mycoplasma directorate, Ministry for Primary Industries, 2021-09-01
- Best presentation and travel award ($500), 13th International Conference on Plant Pathogenic Bacteria, 2014-06-08
- APPS travel grant ($3,000), 13th International Conference on Plant Pathogenic Bacteria, 2014-06-08 APPS

- Travel grant ($1,000), Australasian Plant Pathology conference, 2013-11-25 Best student's oral presentation award, First International conference on Psa, 2013-11-18
- Bio-Protection Research Centre writing scholarship ($2,000), Bio-Protection Research Centre, 2013-11-01 NZPPS Travel grant, New Zealand Plant Protection Society conference, 2013-08-12
- Microsoft Research Travel grant, Latin American e-Science workshop, 2013-05-13
- Invited presenter, Lincoln University Community Day, 2013-03-01.
- Better Border Biosecurity (B3) scholarship, CORE (Centre of Research Excellence), Lincoln University, 2011-01-01
- Highly recommended (third place prize), Lincoln University Postgraduate Conference, 2012-09-01
- Department Runner-up, THr3sis competition, 2012-05-16
- Lincoln University Thr3sis competition finalist, Lincoln University, 2012-05-30
- Second-place prize, Lincoln University Postgraduate Conference, 2011-08-28
- Travel grant ($US3000), Joint congress of Southern African society for plant pathology, African mycological association, and medical mycology in Africa, 2005-01-01.

REVIEWER TO THE FOLLOWING JOURNALS (SELECTED)

- Nature Scientific Reports
- Remote Sensing
- Phytopathology
- PlosOne
- Plant Pathology
- Forests
- Insects
- Euro J of Plant Pathology
- Aus J of Plant pathology
- Int J of Pest Management
- Climate
- Agronomy
- Pathogens
- Molecules
- Plants
- Applied Sciences
- Peer J
- Journal of Applied Science
- Pathogens

SKILLS

- **Epidemiology**: SEIR model, mechanistic model, and data analysis of controlled environment trials
- **Programming and coding**: R, R Shiny, Python, SAS, Power BI, ArcGIS Pro, ArcGIS Web App
- **Modeling**: GIS, Web-GIS, R, Python, Species distribution modelling (SDM) using machine learning algorithms.
- **Decision Making**: Making sound decisions based on available information and critical analysis.
- **Adaptability**: Flexible to adjust to changing circumstances and navigate uncertainty.
- **Strategic Thinking**: Ability to think long-term and align actions with organizational objectives.