

Girija Chetty
Professor
Information, Technology (IT) & Systems



Biography

Dr. Girija Chetty has a Bachelors and Masters degree in Electrical Engineering and Computer Science from India, and PhD in Information Sciences and Engineering from Australia. She has more than 35 years of experience in Industry, Research and Teaching from Universities and Research and Development Organisations from India and Australia, and has held several leadership positions including Head of Software Engineering and Computer Science, Program Director of ITS courses, and Course Director for Master of Computing and Information Technology Courses. Currently, she is a Full Professor in Computing and Information Technology at School of Information Technology and Systems, at University of Canberra, Australia, and leads a research group with several PhD students, Post Docs, research assistants and regular International and National visiting researchers. She is a Senior Member of IEEE, USA, and senior member of Australian Computer Society, and ACM member, and her research interests are in the area of multimodal systems, computer vision, pattern recognition, data mining, and medical image computing. She has published extensively with more than 200 fully refereed publications in several invited book chapters, edited books, high quality conference and journals, and she is in the editorial boards, technical review committees and regular reviewer for several IEEE, Elsevier and IET journals in the area related to her research interests. She is highly interested in seeking wide and interdisciplinary collaborations, research scholars and visitors in her research group.

Qualifications

PhD, Audio Visual Speaker Identity Verification, University of Canberra
23 Feb 2004 → 17 Dec 2007
Award Date: 17 Dec 2007

Research outputs

A low-resolution real-time face recognition using extreme learning machine and its variants

Rajpal, A., Sehra, K., Mishra, A. & Chetty, G., 28 Feb 2023, (E-pub ahead of print) In: *Imaging Science Journal*. p. 1-16 16 p.

A framework for vehicle quality evaluation based on interpretable machine learning

Alwadi, M., Chetty, G. & Yamin, M., Jan 2023, In: *International Journal of Information Technology (Singapore)*. 15, 1, p. 129-136 8 p.

Automatic deep learning-based consolidation/collapse classification in lung ultrasound images for COVID-19 induced pneumonia

Durrani, N., Vukovic, D., van der Burgt, J., Antico, M., van Sloun, R. J. G., Canty, D., Steffens, M., Wang, A., Royse, A., Royse, C., Haji, K., Dowling, J., Chetty, G. & Fontanarosa, D., Dec 2022, In: *Scientific Reports*. 12, 1, p. 1-15 15 p., 17581.

Multi-scale 3D UNet: Multi-scale 3D UNet for Brain Tumor Segmentation

Ahmad, P., Qamar, S., Shen, L., Rizvi, S. Q. A., Ali, A. & Chetty, G., 15 Jul 2022, *International MICCAI Brainlesion Workshop: Glioma, Multiple Sclerosis, Stroke and Traumatic Brain Injuries - 7th International Workshop, BrainLes 2021, Held in Conjunction with MICCAI 2021*. Crimi, A. & Bakas, S. (eds.). Springer, p. 30-41 12 p. (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics); vol. 12963 LNCS).

A low resource 3D U-Net based deep learning model for medical image analysis

Chetty, G., Yamin, M. & White, M., Feb 2022, In: *International Journal of Information Technology (Singapore)*. 14, 1, p. 95-103 9 p.

Cardiovascular Disease Detection Based on Interpretable and Explainable AI

Rajjilwal, N. S. & Chetty, G., 2022, *Proceedings of IEEE Asia-Pacific Conference on Computer Science and Data Engineering, CSDE 2022*. IEEE, Institute of Electrical and Electronics Engineers, p. 1-7 7 p. (Proceedings of IEEE Asia-Pacific Conference on Computer Science and Data Engineering, CSDE 2022).

Deep Learning for Real Estate Trading

Zhao, Y., Chetty, G. & Tran, D., 2022, *Proceedings of IEEE Asia-Pacific Conference on Computer Science and Data Engineering, CSDE 2022*. IEEE, Institute of Electrical and Electronics Engineers, (Proceedings of IEEE Asia-Pacific Conference on Computer Science and Data Engineering, CSDE 2022).

Deep Learning for Real-Time Malaria Parasite Detection and Counting Using YOLO-mp

Koirala, A., Jha, M., Bodapati, S., Mishra, A., Chetty, G., Sahu, P. K., Mohanty, S., Padhan, T. K., Mattoo, J. & Hukoo, A., 2022, In: *IEEE Access*. 10, p. 102157-102172 16 p.

Automatic deep learning-based pleural effusion classification in lung ultrasound images for respiratory pathology diagnosis

Tsai, C. H., van der Burgt, J., Vukovic, D., Kaur, N., Demi, L., Canty, D., Wang, A., Royse, A., Royse, C., Haji, K., Dowling, J., Chetty, G. & Fontanarosa, D., Mar 2021, In: *Physica Medica*. 83, p. 38-45 8 p.

Deep Learning based Decision Support Framework for Cardiovascular Support Disease Prediction

Rajjilwal, N. S. & Chetty, G., 2021, *2021 IEEE Asia-Pacific Conference on Computer Science and Data Engineering, CSDE 2021*. Khan, MGM., Chetty, G. & Xia, F. (eds.). United States: IEEE, Institute of Electrical and Electronics Engineers, p. 1-12 12 p. (2021 IEEE Asia-Pacific Conference on Computer Science and Data Engineering, CSDE 2021).

Multimodal Segmentation Based on a Novel 3D U-Net Deep Learning Architecture

Swaroop, K. M. & Chetty, G., 2021, *2021 IEEE Asia-Pacific Conference on Computer Science and Data Engineering, CSDE 2021*. Khan, MGM., Chetty, G. & Xia, F. (eds.). United States: IEEE, Institute of Electrical and Electronics Engineers, (2021 IEEE Asia-Pacific Conference on Computer Science and Data Engineering, CSDE 2021).

A Novel Approach using Deep Neural Network Vessel Segmentation Retinal Disease Detection

Kaur, N., Chetty, G. & Singh, L., 16 Dec 2020, *2020 IEEE Asia-Pacific Conference on Computer Science and Data Engineering, CSDE 2020*. United States: IEEE, Institute of Electrical and Electronics Engineers, p. 1-6 6 p. 9411629. (2020 IEEE Asia-Pacific Conference on Computer Science and Data Engineering, CSDE 2020).

Deep Machine Learning Digital library recommendation system based on Metadata for Arabic and English Languages

Almaghrabi, M. & Chetty, G., 16 Dec 2020, *2020 IEEE Asia-Pacific Conference on Computer Science and Data Engineering, CSDE 2020*. United States: IEEE, Institute of Electrical and Electronics Engineers, p. 1-6 6 p. 9411525. (2020 IEEE Asia-Pacific Conference on Computer Science and Data Engineering, CSDE 2020).

Message from DSS 2020 General Chairs

Sheng, M., Chetty, G. & Chu, X., Dec 2020, p. 1-1. 1 p.

Multilingual Sentiment Recommendation System based on Multilayer Convolutional Neural Networks (MCNN) and Collaborative Filtering based Multistage Deep Neural Network Models (CFMDNN)

Almaghrabi, M. & Chetty, G., Nov 2020, *2020 IEEE/ACS 17th International Conference on Computer Systems and Applications, AICCSA 2020*. Akoglu, A., Talbi, E-G., Vargas-Solar, G. & Musicante, M. A. (eds.). United States: IEEE, Institute of Electrical and Electronics Engineers, p. 1-6 6 p. 9316492. (Proceedings of IEEE/ACS International Conference on Computer Systems and Applications, AICCSA; vol. 2020-November).

Improving sentiment analysis in arabic and english languages by using multi-layer perceptron model (MLP)

Almaghrabi, M. & Chetty, G., 1 Oct 2020, p. 745-746. 2 p.

Genetic Algorithms for the Travelling Salesman Problem: A Crossover Comparison

Alzyadat, T., Yamin, M. & Chetty, G., Mar 2020, In: *International Journal of Information Technology*. 12, 1, p. 209-213 5 p.

Automatic Segmentation of Achilles Tendon Tissues Using Deep Convolutional Neural Network

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Automatic brain image analysis based on multimodal deep learning scheme

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Deep learning based spam detection system

Chetty, G., Bui, H. & White, M., 2 Dec 2019, *Proceedings - International Conference on Machine Learning and Data Engineering, iCMLDE 2019*. Rhee, P. K., Hwa, K-Y., Pai, T-W., Howard, D. & Bashar, R. (eds.). United States: IEEE, Institute of Electrical and Electronics Engineers, p. 91-96 6 p. 8995757. (Proceedings - International Conference on Machine Learning and Data Engineering, iCMLDE 2019).

Investigating Deep Learning Word2vec Model for Sentiment Analysis in Arabic and English languages for User's reviews

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Enhancing clinical name entity recognition based on hybrid deep learning scheme

Phan, R., Luu, T., Davey, R. & Chetty, G., 8 Nov 2019, *Proceedings - 19th IEEE International Conference on Data Mining Workshops, ICDMW 2019*. Papapetrou, P., Cheng, X. & He, Q. (eds.). United States: IEEE, Institute of Electrical and Electronics Engineers, p. 1049-1055 7 p. 8955534. (IEEE International Conference on Data Mining Workshops, ICDMW; vol. 2019-November).

Risk factors identification for heart disease in unstructured dataset using deep learning approach

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HOG Based Facial Recognition Approach Using Viola Jones Algorithm and Extreme Learning Machine

Sehra, K., Rajpal, A., Mishra, A. & Chetty, G., 29 Jun 2019, *Computational Science and Its Applications - ICCSA 2019: 19th International Conference, Saint Petersburg, Russia, July 1-4, 2019, Proceedings, Part V*. Misra, S., Gervasi, O., Murgante, B., Stankova, E., Korkhov, V., Torre, C., Rocha, A. M. A. C., Tanar, D., Apduhan, B. O. & Tarantino, E. (eds.). Cham, Switzerland: Springer, Vol. 11623. p. 423-435 13 p. (Lecture Notes in Computer Science; vol. 11623).

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Embodied Conversational Agents and Interactive Virtual Humans for Training Simulators

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Rajliwall, N. S., Davey, R. & Chetty, G., 10 Dec 2018, *Proceedings: 2018 5th Asia-Pacific World Congress on Computer Science and Engineering : APWConCSE 2018*. Ali, A. B. M. S., Miah, S. & Valluri, M. R. (eds.). Danvers, USA: IEEE, Institute of Electrical and Electronics Engineers, p. 246-252 7 p. 8853798. (Proceedings - 2018 5th Asia-Pacific World Congress on Computer Science and Engineering, APWC on CSE 2018).

Obesity and Co-Morbidity Detection in Clinical Text Using Deep Learning and Machine Learning Techniques

Rajput, K., Chetty, G. & Davey, R., 10 Dec 2018, *Proceedings - 2018 5th Asia-Pacific World Congress on Computer Science and Engineering, APWC on CSE 2018: APWConCSE 2018*. Ali, A. B. M. S., Miah, S. & Rao Valluri, M. (eds.). Danvers, USA: IEEE, Institute of Electrical and Electronics Engineers, p. 51-56 6 p. 8853828. (Proceedings - 2018 5th Asia-Pacific World Congress on Computer Science and Engineering, APWC on CSE 2018).

Performance Analysis of Deep Neural Models for Automatic Identification of Disease Status

Rajput, K., Chetty, G. & Davey, R., 3 Dec 2018, *Proceedings International Conference on Machine Learning and Data Engineering (iCMLDE 2018)*. Rhee, P. K., Howard, D. & Bashar, R. (eds.). NJ, United States: IEEE, Institute of Electrical and Electronics Engineers, p. 136-141 6 p. 8614016. (Proceedings - International Conference on Machine Learning and Data Engineering, iCMLDE 2018).

Impact Rating Scales on Recommender System and Using Deep Learning and Neural Network Models to Improve Rating Prediction

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Deep Learning Based Biomedical NER Framework

Phan, R., Luu, T. M., Davey, R. & Chetty, G., 18 Nov 2018, *Proceedings of the 2018 IEEE Symposium Series on Computational Intelligence, SSCI 2018*. Sundaram, S. (ed.). Bangalore, India: IEEE, Institute of Electrical and Electronics Engineers, p. 33-40 8 p. 8628740. (Proceedings of the 2018 IEEE Symposium Series on Computational Intelligence, SSCI 2018).

Deep neural models for chronic disease status detection in free text clinical records

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Customer Life Time Value Model Framework Using Gradient Boost Trees with RANSAC Response Regularization

SINGH, L., Kaur, N. & CHETTY, G., 8 Jul 2018, *Proceedings 2018 International Joint Conference on Neural Networks (IJCNN)*. Rio de Janeiro, Brazil, Brazil: IEEE, Institute of Electrical and Electronics Engineers, p. 1527-1534 8 p. 8489710. (Proceedings of the International Joint Conference on Neural Networks; vol. 2018-July).

Lifting Wavelet Transform based Fast Watermarking of Video Summaries using Extreme Learning Machine

Mishra, A., Agarwal, C. & CHETTY, G., 8 Jul 2018, *Proceedings 2018 International Joint Conference on Neural Networks (IJCNN)*. Rio de Janeiro, Brazil: IEEE, Institute of Electrical and Electronics Engineers, p. 1-7 7 p. 8489305. (Proceedings of the International Joint Conference on Neural Networks; vol. 2018-July).

Neuro Fuzzy Architecture for Gray Scale Image Watermarking using Fractal Dimensions

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Optimization of scaling factors for image watermarking using harmony search algorithm

Mishra, A., Agarwal, C. & Chetty, G., 4 Jul 2018, *Computational Science and Its Applications – ICCSA 2018 - 18th International Conference, 2018, Proceedings*. Gervasi, O., Murgante, B., Misra, S., Stankova, E., Torre, C. M., Rocha, A. M. A. C., Taniar, D., Apduhan, B. O., Tarantino, E. & Ryu, Y. (eds.). Netherlands: Springer, Vol. 10963. p. 422-434 13 p. (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics); vol. 10963 LNCS).

Clinical Name Entity Recognition Based on Recurrent Neural Networks

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A Virtual Sensor Network Framework for Vehicle Quality Evaluation

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Machine learning based models for cardiovascular risk prediction

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Oral supplementation of specific collagen peptides accelerates improvement in Achilles tendon pain and function in combination with a tailored exercise program

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PHIs (Protected Health Information) identification from free text clinical records based on machine learning

Rajput, K., Chetty, G. & Davey, R., 27 Nov 2017, *Proceedings 2017 IEEE Symposium Series on Computational Intelligence (SSCI 2017)*. Bonissone, P. & Fogel, D. (eds.). Hawaii: IEEE, Institute of Electrical and Electronics Engineers, Vol. 2018-January. p. 1-9 9 p. (2017 IEEE Symposium Series on Computational Intelligence, SSCI 2017 - Proceedings; vol. 2018-January).

Chronic Disease Risk Monitoring Based on an Innovative Predictive Modelling Framework

RAJLIWALL, N., CHETTY, G. & DAVEY, R., 26 Nov 2017, *2017 IEEE Symposium Series on Computational Intelligence (SSCI)*. Fogel, G. (ed.). Honolulu, HI, USA: IEEE, Institute of Electrical and Electronics Engineers, p. 1-8 8 p. (2017 IEEE Symposium Series on Computational Intelligence, SSCI 2017 - Proceedings; vol. 2018-January).

A Multilevel NER Framework for Automatic Clinical Name Entity Recognition

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Automated visibility map of the internal colon surface from colonoscopy video

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Investigation into Interoperability in Cloud Computing: An Architectural Model

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Uninformative Frame Detection in Colonoscopy Through Motion, Edge and Color Features

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A Multilevel Fusion Approach for Audiovisual Emotion Recognition

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A Novel Sensor Selection Scheme for Energy Efficient Environment Monitoring of Wireless Sensor Networks

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Energy efficient data mining scheme for high dimensional data

Alwadi, MD. & CHETTY, G., 2015, *Proceedings of the International Conference on Information and Communications Technologies*. Samuel, P. (ed.). India: Elsevier, Vol. 46. p. 483-490 8 p. (Procedia Computer Science; vol. 46).

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Sensor selection scheme in wireless sensor networks: A new routing approach

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Chetty, G. & Wagner, M., 2005, *6th Interspeech 2005 and 9th European Conference on Speech Communication and Technology (EUROSPEECH)*. Flurui, T. (ed.). Geneva: International Speech Communication Association, p. 2181-2184 4 p.

"Liveness" Verification in Audio-Video Authentication

Chetty, G. & Wagner, M., 2004, *Proceedings Interspeech 2004*. Kim, S. H. & Youn, D. H. (eds.). Jeju, Korea: Interspeech 2004, p. 2509-2512 4 p.

Automated lip feature extraction for liveness verification in audio-video authentication

Chetty, G. & Wagner, M., 2004, *Proceedings Image and Vision Computing-New Zealand 2004*. Pairman, D., Noreth, H. & McNeill, S. (eds.). New Zealand: University of Canterbury, p. 17-22 6 p.

Liveness Verification in Audio-Video Speaker Authentication

Chetty, G. & Wagner, M., 2004, *Proceedings of the 10th Australian Conference on Speech, Science and Technology*. Cassidy, S., Cox, F., Mannwell, R. & Palethorpe, S. (eds.). Sydney: Australian Speech Science and Technology Association (ASSTA), p. 358-363 6 p.

Design and development of model robots: a new dimension in the delivery of electronic and computer engineering programs

Chetty, G., 1 Jan 2000, In: *International Journal of Electrical Engineering Education*. 37, 3, p. 249-258 10 p.

Electric field based sensing for underwater vehicle guidance

Chetty, G. & Russell, A., 1 Jan 1998, p. 139-140. 2 p.

A new approach to teaching control and instrumentation at an undergraduate level

Chetty, G. & Brisk, M., 1998, *A new approach to teaching control and instrumentation at an undergraduate level*. Rockhampton, QLD: Engineers Australia, p. 449-452 4 p.

Electric Field Based Obstacle Avoidance

Chetty, G. & Russell, A., 1998, *Field and Service Robotics*. Zelinsky, A. (ed.). London, UK: Springer, p. 364-368 5 p.

Integrated teaching technique for management of digital signal processing education

Chetty, G., 1 Dec 1996, *Fourth International Symposium on Signal Processing and Its Applications*. Gold Coast, Australia: IEEE, p. 788-791 4 p.

Neural network based signal processing scheme for automatic tool wear recognition

Chetty, G., 1996, *Fourth International Symposium on Signal Processing and its Applications*. Brisbane: IEEE, Institute of Electrical and Electronics Engineers, Vol. 2. p. 533-536 4 p.

Knowledge-based object recognition system

Chetty, G. & Deshpande, N., 30 Jun 1995, p. 459-468. 10 p.

Activities

Keynote Speech on: "Towards A Global Collective Intelligence - Leveraging Advances in AI, Big Data and Multimodal Science"

Girija CHETTY (Speaker)

9 Jan 2018

Keynote Speech on Fusion of Augmented and Virtual Reality for Medical Imaging Applications

Girija CHETTY (Speaker)

23 Apr 2017

Keynote Speech on "Deep Fusion Networks and its Applications" at ICICA 2017, Canberra, Australia

Girija CHETTY (Speaker)

12 Jan 2017

International Conference on Control, Automation and Robotics (ICCAR 2016)

Girija CHETTY (Chair) & Maodi Ma (Chair)

28 Apr 2016 → 30 Apr 2016

Keynote Speech on "Information Fusion for UAV Surveillance and its applications"

Girija CHETTY (Speaker)

21 Jan 2016

2015 International Conference on Control, Automation and Robotics (ICCAR)

Girija CHETTY (Chair) & Yang Xiao (Chair)

20 May 2015 → 22 May 2015

Awards

Projects

AI4DigPath: A Novel Malaria Pathogen Detection System for Rural Communities

Chetty, G. & Jha, M.

1/06/22 → 31/05/24

Automatic Real-time Endoscopy Assistance

Chetty, G. & Dumas, C.

1/01/13 → 30/06/16

Automatic Real-time Endoscopy Assistance

Chetty, G.

1/01/13 → 31/12/13

Comprehensive Australian Speech Science Infrastructure: An Audio-Video Speech Corpus of Australian English-via Uni of Western Sydney

Burnham, D., Wagner, M., Chetty, G., Goecke, R. & Tran, D.

1/01/10 → 30/06/15

DataPOS Prediction Engine "Deep Kitchen

Chetty, G.

9/06/17 → 5/07/17

Developing a breakthrough multi-modal technology for early diagnosis of Alzheimer's disease

Chetty, G.

1/08/12 → 11/08/13

AI_USER: Development of AI guided ultrasound for extreme and remote environments

Chetty, G., Dowling, J. & Fontanarosa, D.

Machine learning applied to large collections of medical images

Chetty, G.

18/07/16 → 31/07/19

Multimodal Brain Image Analysis for Early Detection and Monitoring of Mental Health Disorders

Chetty, G. & White, M.

1/02/14 → 31/12/17

The impact of terrorism on financial markets in Australia and New Zealand

Sathye, M., Chetty, G. & Sharma AM PhD, D.

22/12/06 → 22/12/07

Using big data-driven approaches for improved population health

Davey, R., Chetty, G. & Hanlen, L.

16/12/15 → 30/12/16

eLiving Lab (Schedule # 3 under the Umbrella Agreement - 2011000120)

Waddington, G., Chetty, G., Davey, R., Hanlen, L., Scarvell, J., Sharma AM PhD, D. & Tran, D.

28/02/14 → 28/02/17