

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 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, University of Canberra
23 Feb 2004 → 17 Dec 2007
Award Date: 17 Dec 2007

Research outputs

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.

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

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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

Alzyadat, T., Praet, S., Chetty, G., Goecke, R., Hughes, D., Kumar, D., Welvaert, M., Vlahovich, N. & Waddington, G., 1 Jan 2020, *Machine Learning in Medical Imaging - 11th International Workshop, MLMI 2020, Held in Conjunction with MICCAI 2020, Proceedings*. Liu, M., Yan, P., Lian, C. & Cao, X. (eds.). Netherlands: Springer, p. 444-454 11 p. (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics); vol. 12436 LNCS).

Deep Learning with XGBoost for Real Estate Appraisal

Zhao, Y., Chetty, G. & Tran, D., 6 Dec 2019, *2019 IEEE Symposium Series on Computational Intelligence, SSCI 2019*. United States: IEEE, Institute of Electrical and Electronics Engineers, p. 1396-1401 6 p. 9002790. (2019 IEEE Symposium Series on Computational Intelligence, SSCI 2019).

Automatic brain image analysis based on multimodal deep learning scheme

Chetty, G., Singh, M. & White, M., 2 Dec 2019, *Proceedings - 2019 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. 97-100 4 p. 8995755. (Proceedings - International Conference on Machine Learning and Data Engineering, iCMLDE 2019).

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

Almaghrabi, M. & Chetty, G., Dec 2019, *Proceedings of the 2019 IEEE Asia-Pacific Conference on Computer Science and Data Engineering (CSDE)*. Washio, T. (ed.). United States: IEEE, Institute of Electrical and Electronics Engineers, p. 1-6 6 p. 9162391. (2019 IEEE Asia-Pacific Conference on Computer Science and Data Engineering, CSDE 2019).

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., Taniar, D., Apduhan, B. O. & Tarantino, E. (eds.). Cham, Switzerland: Springer, Vol. 11623. p. 423-435 13 p. (Lecture Notes in Computer Science; vol. 11623).

A Deep Learning Based Collaborative Neural Network Framework for Recommender System

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Biomedical Named Entity Recognition Based on Hybrid Multistage CNN-RNN Learner

Phan, R., Luu, T. M., Davey, R. & Chetty, G., 15 Jan 2019, *Proceedings International Conference on Machine Learning and Data Engineering (iCMLDE 2018)*. Rhee, P. K., Howard, D. & Bashar, R. (eds.). United States: IEEE, Institute of Electrical and Electronics Engineers, p. 128-135 8 p. 8614015. (Proceedings - International Conference on Machine Learning and Data Engineering, iCMLDE 2018).

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Embodied Conversational Agents and Interactive Virtual Humans for Training Simulators

CHETTY, G. & White, M., 2019, *Proceedings of 2019 Audio Visual Speech Processing Conference (AVSP)*. Melbourne, Australia: International Speech Communication Association, p. 1-5 5 p.

Cardiovascular Risk Prediction Based on XGBoost

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

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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

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Neuro Fuzzy Architecture for Gray Scale Image Watermarking using Fractal Dimensions

Mishra, A., Sehra, K. & CHETTY, G., 8 Jul 2018, *Proceedings 2018 International Joint Conference on Neural Networks (IJCNN)*. Alippi, C., Melin, P. & Ting, C-K. (eds.). Brazil: IEEE, Institute of Electrical and Electronics Engineers, Vol. 2018-July. p. 1-8 8 p. 8489350. (Proceedings of the International Joint Conference on Neural Networks; vol. 2018-July).

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

LUU, T. M., PHAN, R., DAVEY, R. & CHETTY, G., 2 Jul 2018, *Proceedings of the 2018 18th International Conference on Computational Science and Its Applications, ICCSA 2018*. Taniar, D., Tarantino, E., Misra, B. M. S., Gervasi, O., Torre, C. M., Ryu, Y., Stankova, E., Rocha, A. M. A. C. & Apduhan, B. O. (eds.). Australia: IEEE, Institute of Electrical and Electronics Engineers, p. 1-9 9 p. 8439147

A Virtual Sensor Network Framework for Vehicle Quality Evaluation

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Machine learning based models for cardiovascular risk prediction

Rajliwall, N. S., Davey, R. & Chetty, G., 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. 142-148 7 p. 8614017. (Proceedings - International Conference on Machine Learning and Data Engineering, iCMLDE 2018).

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

Praet, S., Alzyadat, T., Purdam, C., Welvaert, M., Gaida, J., Chetty, G., Manzanero, S., Vlahovich, N., Hughes, D. & Waddington, G., 2018, In: *Journal of Bodywork and Movement Therapies*. 22, 4, p. 862-863 2 p.

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)*. 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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A Novel Data Mining Testbed for User Centred Modelling and Personalisation of Digital Library Services

ALMAGHRABI, M. & CHETTY, G., 14 Nov 2017, *Proceedings - 13th IEEE International Conference on eScience, eScience 2017*. Auckland, New Zealand: IEEE, Institute of Electrical and Electronics Engineers, p. 434-435 2 p. 8109163. (Proceedings - 13th IEEE International Conference on eScience, eScience 2017).

A distributed smart fusion framework based on hard and soft sensors

CHETTY, G. & Yamin, M., 2017, In: *International Journal of Information Technology*. 9, 1, p. 19-31 13 p.

Automated visibility map of the internal colon surface from colonoscopy video

ARMIN, A., CHETTY, G., De Visser, H., Dumas, C., Grimpen, F. & salvado, O., 1 Sep 2016, In: *International Journal of Computer Assisted Radiology and Surgery*. 11, 9, p. 1599-1610 12 p.

Investigation into Interoperability in Cloud Computing: An Architectural Model

Sutherland, S. & Chetty, G., Mar 2016, In: *Journal of Computers*. 11, 2, p. 159-168 10 p.

A smart fusion framework for multimodal object, activity and event detection

CHETTY, G. & Yamin, M., 2016, *Proceedings of the 10th INDIACom; 2016 3rd International Conference on Computing for Sustainable Global Development, INDIACom 2016*. Hoda, M. N. (ed.). New Delhi, India: IEEE, Institute of Electrical and Electronics Engineers, Vol. 1. p. 1417-1422 6 p. 7724498. (Proceedings of the 10th INDIACom; 2016 3rd International Conference on Computing for Sustainable Global Development, INDIACom 2016).

Body sensor networks for human activity recognition

CHETTY, G. & White, M., 2016, *Proceedings Signal Processing and Information Networks (SPIN 2016)*. Dutta, M. K. & Banerjee, J. K. R. P. (eds.). United States of America: IEEE, Institute of Electrical and Electronics Engineers, p. 660-665 6 p. 7566779. (3rd International Conference on Signal Processing and Integrated Networks, SPIN 2016).

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

ARMIN, A., CHETTY, G., Fripp, J., De Visser, H., Dumas, C., Fazlollahi, A., Grimpen, F. & salvado, O., 2016, *Computer-Assisted and Robotic Endoscopy: Second International Workshop, CARE 2015*. Luo, X., Reichl, T., Reiter, A. & Mariottini, G-L. (eds.). Munich, Germany: Springer, Vol. 9515. p. 153-162 10 p. (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics); vol. 9515).

Illumination invariant efficient face recognition using a single training image

Jangid, B., Biswas, K. K., Hanmandlu, M. & CHETTY, G., 23 Nov 2015, *Proceedings International Conference on Digital Image Computing and Applications 2015: Techniques and Applications, DICTA 2015*. Sherrah, J. & Suter, D. (eds.). Adelaide, Australia: IEEE, Institute of Electrical and Electronics Engineers, Vol. 1. p. 1-7 7 p. 7371266. (2015 International Conference on Digital Image Computing: Techniques and Applications, DICTA 2015).

A Multilevel Fusion Approach for Audiovisual Emotion Recognition

CHETTY, G., WAGNER, M. & GOECKE, R., 2 Jan 2015, *Emotion Recognition: A Pattern Analysis Approach: A Pattern Analysis Approach*. Konar, A. & Chakraborty, A. (eds.). USA: John Wiley & Sons, p. 437-460 24 p. (Emotion Recognition: A Pattern Analysis Approach).

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

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Analysing the robust EEG channel set for person authentication

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Email Personalization and User Profiling Using RANSAC Multi Model Response Regression Based Optimized Pruning Extreme Learning Machines and Gradient Boosting Trees

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Energy efficient data mining scheme for high dimensional data

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Intelligent human activity recognition scheme for ehealth applications

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Multimodal Biometric Database for Person Identification and Gait Analysis

CHETTY, G., 2015, In: International Journal of Intelligent Information Processing. 5, 3, p. 1-10 10 p.

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Smart phone based data mining for human activity recognition

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Optimized pruned annular extreme learning machines

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A Novel Multimodal Data Analytic Scheme for Human Activity Recognition

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A novel scene based robust video watermarking scheme in DWT domain using extreme learning machine

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Migration to Cloud Computing: a Sample Survey Based on a Research in Progress on the Investigation of Standard Based Interoperability Protocols for the Convergence of Cloud Computing, Service Oriented Architecture and Enterprise Architecture

Sutherland, S. & CHETTY, G., 2014, In: International Journal of Information Processing and Management. 5, 1, p. 50-61 12 p.

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Multiview gait biometrics for human identity recognition

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Protein Folding Recognition

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Understanding the Brain via fMRI Classification

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Gait recognition based on gait pal and pal entropy image

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Multi-view Multi-modal Gait Based Human Identity Recognition from Surveillance videos

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Multimodal Feature Learning for Gait Biometric Base Human Identity Recognition

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Person Identification in Surveillance video using gait biometric cues

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A Comparative Study of MRI Data using Various Machine Learning and Pattern Recognition Algorithms to Detect Brain Abnormalities

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A Hybrid Approach to Increase the Performance of Protein Folding Recognition Using Support Vector Machines

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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

CSIRO funded Research Assistant for AI_USER

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

7/09/20 → 6/09/21

Projects

Automatic Real-time Endoscopy Assistance

Chetty, G. & Dumas, C.

CSIRO

1/01/13 → 30/06/16

Automatic Real-time Endoscopy Assistance

Chetty, G.

CSIRO

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.
Australian Research Council
1/01/10 → 30/06/15

DataPOS Prediction Engine "Deep Kitchen"

Chetty, G.
University of Canberra, ACT Government
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.
CSIRO
18/07/16 → 31/07/19

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

Chetty, G. & White, M.
Infinity Imaging Pty. Ltd.
1/02/14 → 31/12/17

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

Sathye, M., Chetty, G. & D, S.
University of Canberra
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., D, S. & Tran, D.
NICTA
28/02/14 → 28/02/17