Chandan Gautam

Github: https://github.com/Chandan-IITI

Contact Information

Indian Institute of Science
Artificial Intelligence and Robotics Lab
Bengaluru (Karnataka), India - 560012

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Education

PhD - Computer Science and Engineering — Jan 2015 - May 2020
Indian Institute of Technology Indore, India — CGPA: 9.0/10
Thesis Title: Kernel-based Learning in the Absence of Counterexamples: One-class Classification
Advisor: Dr. Aruna Tiwari

M.Tech - Information Technology — August 2012 - July 2014
University of Hyderabad, India — CGPA: 8.63/10
Thesis Title: Hybrid Intelligence System for Data Imputation
Advisor: Dr. Vadlamani Ravi

B.E. - Computer Science and Engineering — August 2007 - May 2011
Vinayaka Missions University, Salem, Tamil Nadu, India — Percentage: 78.8%

Research Interests

Broad: Machine Learning
Specific: Continual Learning, One-Class Classification, Anomaly/Novelty Detection, Zero-Shot Learning, Kernel Learning, Non-iterative Approaches in Learning, and Data Imputation

Publications

International Journals (In chronological order)

J1. **C. Gautam**, A. Tiwari, P. K. Mishra, S. Suresh, A. Iosifidis, M. Tanveer. *Graph-Embedded Multi-layer Kernel Ridge Regression for One-class Classification*, **Cognitive Computation**, 2020 (Springer). (**SCI**, IF: 4.287) (Accepted)

J2. **C. Gautam**, P. K. Mishra, A. Tiwari, B. Richhariya, H. M. Pandey, S. Wang, M. Tanveer. *Minimum Variance-Embedded Deep Kernel Regularized Least Squares Method for One-class Classification and Its Applications to Biomedical Data*, **Neural Network**, vol. 123, pp. 191-216, 2020 (ELSEVIER). (**SCI**, IF: 5.785)

J3. **C. Gautam**, A. Tiwari, M. Tanveer. *AEKOC+: Kernel Ridge Regression-based Auto-Encoder for One-class Classification using Privileged Information*, **Cognitive Computation**, pp. 1-14, 2020 (Springer). (**SCI**, IF: 4.287)

J4. **C. Gautam**, A. Tiwari, M. Tanveer. *KOC+: Kernel Ridge Regression based One-class Classification using Privileged Information*, **Information Sciences**, vol. 504, pp. 324-333, 2019 (ELSEVIER). (**SCI**, IF: 5.524)

J5. **C. Gautam**, A. Tiwari, S. Suresh, and K. Ahuja. *Adaptive Online Learning with Regularized Kernel for One-class Classification*, **IEEE Transactions on Systems, Man, and Cybernetics: Systems**, pp. 1-16, 2019 (IEEE). (**SCI**, IF: 7.351)

J6. M.Tanveer, **C. Gautam**, P. N. Suganthan. *Comprehensive Evaluation of Twin SVM based Classifiers on UCI Datasets*, **Applied Soft Computing**, vol. 83, pp. 1-15, 2019 (ELSEVIER). (**SCI**, IF: 4.873)

J7. **C. Gautam**, R. Balajia, K. Sudharsan, A. Tiwari, and K. Ahuja. *Localized Multiple Kernel Learning for Anomaly Detection: One-class Classification*, **Knowledge-Based Systems**, vol. 165, pp. 241-252, 2018 (ELSEVIER). (**SCI**, IF: 5.101)

J8. **C. Gautam**, A. Tiwari, and Q. Leng. *On The Construction of Extreme Learning Machine for Online and Offline One Class Classifier - An Expanded Toolbox*, (Selected in the conference for submitting to this Journal), **Neurocomputing**, vol. 261, pp. 126-143, 2017 (ELSEVIER). (**SCI**, IF: 4.072)

J9. **C. Gautam** and V. Ravi. *Counter Propagation Auto Associative Neural Network based Data Imputation*, **Information Sciences**, vol. 325, pp. 288-299, 2015 (ELSEVIER). (**SCI**, IF: 5.524)

J10. **C. Gautam** and V. Ravi. *Data Imputation via Evolutionary Computation, Clustering and a Neural Network*, **Neurocomputing**, vol. 153, pp. 134-142, 2015 (ELSEVIER). (**SCI**, IF: 4.072)

Communicated Papers in Journals

J11. P. K. Mishra, **C. Gautam** A. Tiwari. *Minimum Variance-Embedded Auto-associative Kernel Extreme Learning Machine for One-class Classification*, Neural Computing and Applications (Springer). (Submitted after Minor Revision) (IF: 4.774)

International Conferences and Workshops

C1. **C. Gautam**, R. Bansal, R. Garg, V. Agarwalla, and A. Tiwari. *A Fast Adaptive Classification Approach Using Kernel Ridge Regression and Clustering for Non-stationary Data Stream*, Machine Intelligence and Signal Analysis (MISP), Indore, India, pp. 739-751, December, 2019 (Springer).

C2. **C. Gautam**, A. Tiwari. *Localized Multiple Kernel Support Vector Data Description*, International Conference on Data Mining Workshops (IEEE **ICDM** Workshop-2018), Singapore, pp. 1514-1521, November, 2018.

C3. **C. Gautam**, A. Tiwari, and A. Iosifidis. *Minimum Variance-Embedded Multilayer Kernel Ridge Regression for One-class Classification*, IEEE Symposium Series on Computational Intelligence (IEEE **SSCI**-2018), Bengaluru, India, pp. 389-396, November, 2018. (Flagship annual international conference sponsored by the IEEE Computational Intelligence Society, Rank C)

C4. **C. Gautam**, A. Tiwari, S. Ravindran. *Construction of Multi-class Classifiers by Extreme Learning Machine Based One-Class Classifiers*, International Joint Conference on Neural Networks (**IJCNN**-2016), Vancouver, July, 2016 (IEEE). (Flagship conference of the IEEE Computational Intelligence Society and the International Neural Network Society, Rank A)

C5. **C. Gautam**, A. Tiwari. *On The Construction of Extreme Learning Machine for One Class Classifier*, International Conference on Extreme Learning Machines (ELM-2015), Hangzhou, China, vol. 6, pp. 447-461, December, 2015 (Springer). (**Received travel grant** by Department of Science and Technology, Govt. of India)

C6. S. Ravindran, **C. Gautam**, A. Tiwari. *Keystroke User Recognition through Extreme Learning Machine and Evolving Clustering Method*, International Conference on Computational Intelligence and Computing Research (ICCIC-15), Madurai, India, pp. 1-5, 2015 (IEEE). (**Best Paper Award**)

C7. K. Ravi, V. Ravi, **C. Gautam**. *Online and semi-online sentiment classification*, International Conference Computing, Communication & Automation (ICCCA-2015), Greater Noida, India, pp. 938-943, 2015 (IEEE).

C8. **C. Gautam**, V. Ravi. *Evolving Clustering Based Data Imputation*, International Conference on Circuits, Power and Computing Technologies (ICCPCT-2014), Kanyakumari, India, pp. 1763-1769, 2014 (IEEE). (**Received travel grant** by IDRBT, Hyderabad, India)

Communicated Papers in Conferences

C9. **C. Gautam**, S. Parameswaran, A. Mishra, S. Suresh. *Generative Replay-based Continual Zero-Shot Learning*, (Under Preparation).

C10. **C. Gautam**, S. Parameswaran, A. Mishra, S. Suresh. *Generalized Continual Zero-Shot Learning*, (Submitted to CVPR-2021).

C11. S. P. Kumar, **C. Gautam**, S. Suresh. *Meta-Cognition-Based Simple And Effective Approach To Object Detection*, (Submitted to ICASSP-2021).

International Book

B1. **C. Gautam**, V. Ravi. *Auto Associative Extreme Learning Machine based Hybrids for Data Imputation*, e-book: Handbook of Research on Intelligent Techniques and Modeling Applications in Marketing Analytics, IGI Global, pp. 75-99, 2016.

Work Experience

Postdoctoral Fellow
Artificial Intelligence and Robotics Lab
Indian Institute of Science (IISc), Bengaluru — December 2019 - Present

Internship and Teaching Assistantship

Institute for Development and Research in Banking Technology (IDRBT), Hyderabad — June 2013 - June 2014
Research Intern, Center of Excellence in CRM and Analytics Lab

Data Mining, IIT Indore — Jan 2015 - April 2015
Teaching Assistant (Instructor: Dr. Aruna Tiwari) — Students: 40

C Programming, IIT Indore — July 2015 - Nov 2015
Teaching Assistant (Instructor: Dr. Tanima Dutta) — Students: 60

Data Mining, IIT Indore — Dec 2015 - April 2016
Teaching Assistant (Instructor: Dr. Aruna Tiwari) — Students: 40

Database Management System, IIT Indore — July 2016 - Nov 2016
Teaching Assistant (Instructor: Dr. Aruna Tiwari) — Students: 40

Computational Intelligence, IIT Indore — Dec 2016 - April 2017
Teaching Assistant (Instructor: Dr. Aruna Tiwari) — Students: 40

Mentoring Experience

- Mentored and proposed research projects for 12 undergraduate and masters students from IIT Indore.
- Worked with the students to meet the specific research goals, and held regular one-on-one meetings to ensure progress.

Minimum Variance-Embedded Deep Kernel Regularized Least Square Method for One-class Classification and Its Applications to Biomedical Data
Pratik Mishra Nov 2018 - May 2020

Attribute-based One-shot One-class Learning
Tapish Pratap Singh, *Rohit Ranjan* July 2018 - Dec 2018

Localized Multiple Kernel Learning for Anomaly Detection
Ramesh Balaji, *K. Sudharsan* July 2017 - April 2018

A Fast Adaptive Active Learning Using Kernel Ridge Regression and Clustering for Non-stationary Environment
Raman Bansal, *Ruchir Garg*, *Vedanta Agarwalla* July 2017 - Dec 2017

Multi-task Learning for One-class Classification
Dhruv Ahuja July 2016 - Dec 2016

Keystroke User Recognition through ELM and Evolving Clustering Method
Sriram Ravindran Jan 2015 - Dec 2015

Technical Skills

MATLAB, C Programming, Python, TensorFlow, R Programming, SAS E-Miner, IBM SPSS, KNIME, NeuroShell, and RapidMiner

Awards

- Received Travel Grant by CoDS-COMAD 2019 to attend the ACM India Joint International Conference on Data Science & Management of Data (6th ACM IKDD CoDS and 24th COMAD).
- Received Travel Grant by Department of Science and Technology, Govt. of India, for attending conference.
- Received *Visvesvaraya Scheme* fellowship supported by the *Department of Electronics and Information Technology* (DEITY), Government of India for doctoral research.
- Secured a position among the top 10% participant in Machine Learning competition during masters, organized by Indian Institute of Science (IISc) Bangalore and Microsoft.
- Awarded 1st prize in Hindi poetry in University of Hyderabad.
- Scored 97.84 percentile in GATE 2012 and received the fellowship from MHRD, Government of India, for pursuing my master's degree.

Professional Services

- Review Editor of Frontiers in Applied Mathematics and Statistics
- Reviewer of various SCI indexed journals viz., IEEE TNNLS, ACM Transactions on Multimedia Computing Communications and Applications, IEEE Trans. on Cybernetics, Information Fusion, Information Sciences, Neurocomputing, Artificial Intelligence in Medicine, Multidimensional Systems and Signal Processing, and IEEE System Journal.
- Provided secretarial and technical assistance in various events viz., CMOCI symposium, MISP conference, GIAN course, various workshops (CMOCI, CSIR-CEERI, and Nature Inspired Optimization Techniques & their Applications).
- Invited to attend ACM-Microsoft-Infosys Academic Research Summit, IISC Bangalore.

EXTRA-CURRICULAR ACTIVITIES

- Won prizes in School and College level Essay and Poem Writing competitions.

REFEREES

Dr. Sundaram Suresh vssuresh@iisc.ac.in
Associate Professor, Artificial Intelligence and Robotics Lab, IISc, Bangalore

Dr. M. Tanveer mtanveer@iiti.ac.in
Associate Professor, Discipline of Mathematics, IIT Indore

Dr. Vadlamani Ravi vravi@idrbt.ac.in
Professor, IDRBT, Hyderabad

Dr. Kapil Ahuja kahuja@iiti.ac.in
Associate Professor, Discipline of Computer Science and Engineering, IIT Indore

Dr. Aruna Tiwari artiwari@iiti.ac.in
Associate Professor, Discipline of Computer Science and Engineering, IIT Indore