Kalyan Veeramachaneni

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Latest: www.kalyanv.org

Education

Syracuse University 2010
Doctor of Philosophy in Electrical Engineering

Syracuse University 2005
Master of Science in Computer Engineering

Academic positions

Massachusetts Institute of Technology April 2016 – present
Principal Research Scientist, LIDS, IDSS

Massachusetts Institute of Technology Jul 2012 – April 2016
Research Scientist, CSAIL

Massachusetts Institute of Technology Jan 2010 – Jul 2012
Post-doctoral Associate, CSAIL

Massachusetts Institute of Technology Aug 2009 – Dec 2009
Visiting Student, CSAIL

GE - Global Research Center Aug 2005 – Feb 2006
Researcher

Research group

Director, Data to AI, LIDS Aug, 2016 - present
My research group is focused on developing systems and technologies that enable building large scale AI applications from data.

Startups

Co-Founder, PatternEx 2013 - present
Series-A funded cyber security company with the first ever *active learning* product that adapts machine learning models based on analyst feedback in real time.

Co-Founder, Feature Labs 2015 - present
A *data science automation* company whose product allows companies to increase their data science resources without the need to hire more data scientists.

Advisor, EverVest 2015 - present
EverVest provides advanced software for analyzing, valuing, and financing renewable energy projects. Acquired by Ultra capital.

Honors and Awards

Top 5 Impactful papers for the decade 2003-2013, ACM SIGEVO, for the paper: 2013
Optimization using particle swarms with near neighbor interactions, ACM-GECCO, 2003

Best paper award, Parallel Implementation of Evolutionary Algorithms, for the paper: 2012
FlexGP: Genetic Programming on the Cloud.

Graduation convocation speaker, School of Engineering, Syracuse University, 2009
For outstanding accomplishments in graduate school. (Addressed ~300 students from SoE)

Best paper award, IEEE CVPR Biometrics Workshop, for the paper: 2008
Decision-level fusion strategies for correlated biometric classifiers.

Best paper award, IEEE Swarm Intelligence Symposium, for the paper: 2007
Probabilistically driven particle swarms for optimization of multi valued discrete problems.

Outstanding Master's Thesis award, Syracuse University Graduate school, 2005
Title: *An evolutionary algorithm based approach for multimodal biometrics fusion*

Deans Scholarship of Merit, Syracuse University 2005

Honors and awards- Students

Owen Derby, MIT EECS Charles and Jennifer Johnson CS MEng Thesis Prize (2^{nd} place) for: 2013
FlexGP: a Scalable System for Factored Learning in the Cloud.

Sebastien Dubois, Ecole Polytechnique CS Department Research Internship Prize for: 2015
Deep Mining:Copula-based Hyper-Parameter Optimization for Machine Learning Pipelines.

Max Kanter, Interview with Stan Bunger and Susan Leigh Taylor, KCBS San Francisco, for: 2015
The Data Science Machine.

Teasha Feldman-Fitzthum, **Forbes 30 under 30 in Energy** 2016
Citation: EverVest provides advance software for analyzing, valuing and financing renewable energy projects. The company got its start when Teasha, a researcher at the Computer Science and Artificial Intelligence Lab, invented a machine learning algorithm to better predict wind resources at a project.

Recent Publications

DSAA 2016a J.M. Kanter, O. Gillespie, **K. Veeramachaneni**, "Label, Segment, Featurize- A cross domain framework for prediction engineering," in proceedings of the 3rd IEEE/ ACM conference on Data Science and Advanced Analytics (DSAA) 2016, IEEE, 2016.

DSAA 2016b B. Schreck, **K. Veeramachaneni**, "What would a data scientists ask? : Automatically formulating and solving prediction problems," in proceedings of the 3rd IEEE/ ACM conference on Data Science and Advanced Analytics (DSAA) 2016, IEEE, 2016.

DSAA 2016c N. Patki, R. Wedge, **K. Veeramachaneni**, "The Synthetic data vault," in proceedings of the 3rd IEEE/ ACM conference on Data Science and Advanced Analytics (DSAA) 2016, IEEE, 2016.

DSAA 2015a J.M. Kanter, **K. Veeramachaneni**, "Deep Feature Synthesis- Towards Automating Data Science Endeavors," in proceedings of the 2nd IEEE/ ACM conference on Data Science and Advanced Analytics (DSAA) 2015, pp 1-10. IEEE, 2015.

DSAA 2015b S. Boyer, B.U. Gelman, B. Schreck, **K. Veeramachaneni**, "Data Science Foundry for MOOCs," in proceedings of the 2nd IEEE/ACM international conference on Data Science and Advanced Analytics (DSAA) 2015, pp 1-10. IEEE, 2015.

GECCO 2015 I. Arnaldo, U.-M. O'Reilly, **K. Veeramachaneni**, "Building Predictive Models via Feature Synthesis," in proceedings of the 17th ACM Genetic and Evolutionary Computation Conference (GECCO) 2015, pp 983-990. ACM, 2015.

IJCAI 2015 **K. Veeramachaneni**, A. Cuesta-Infante, U.-M. O'Reilly, "Copula Graphical Models for Wind Resource Estimation," in proceedings of the 24th international conference on Artificial Intelligence (IJCAI) 2015, pp 2646-2654. AAAI Press, 2015.

CBMS 2015 F. Dernoncourt, **K. Veeramachaneni**, U.- M. O'Reilly, "Gaussian Process-based Feature Selection for Wavelet Parameters: Predicting Acute Hypotensive Episodes from Physiological Signals," in proceedings of the 28th IEEE international symposium on Computer-Based Medical Systems 2015, pp 145-150. IEEE, 2015.

AIED 2015 S. Boyer, **K. Veeramachaneni**, "Transfer Learning for Predictive Models in Massive Open Online Courses," in proceedings of 17th International Conference on Artificial Intelligence in Education 2015, pp 54-63. Springer, 2015.

PLDI 2015 Y. Ding, J. Ansel, **K. Veeramachaneni**, X. Shen, U.-M. O'Reilly, S. Amarasinghe, "Autotuning Algorithmic Choice for Input Sensitivity," in proceedings of the 36th ACM SIGPLAN conference on Programming Language Design and Implementation (PLDI) 2015, vol 50 issue 6, pp 379-390. ACM, 2015.

PACT 2014 J. Ansel, S. Kamil, **K. Veeramachaneni**, J. Ragan-Kelley, J. Bosboom, U.-M. O'Reilly and S. Amarasinghe, "OpenTuner: An Extensible Framework for Program Autotuning," in proceedings of the 23rd ACM international conference on Parallel Architectures and Compilation 2014, pp 303-316. ACM, 2014.

JGC 2015 **K. Veeramachaneni**, I. Arnaldo, O. Derby, U.-M. O'Reilly, "FlexGP: Cloud-Based Ensemble Learning with Genetic Programming for Large Regression Problems," Journal of Grid Computing, September 2015, Volume 13, Issue 3, pp 391-407.

CIM 2015 I. Arnaldo, **K. Veeramachaneni**, A. Song, U.-M. O'Reilly, "Bring Your Own Learner! A cloud-based, data-parallel commons for machine learning," To appear in IEEE Computational Intelligence Magazine. Special Issue on Computational Intelligence for Cloud Computing (Feb. 2015).

Selected Media Coverage

MIT News. With new algorithms, data scientists could accomplish in days what has traditionally taken months. October 21, 2016

Wired. MIT is teaching AI how to help stop cyberattacks. April 18, 2016

Yahoo news. MIT's new AI^2 can predict 85% of cyberattacks. April 18, 2016

Fast Company. Artificial intelligence's ultimate challenge: Cyber attacks. April 18, 2016

CBS News. Artificial intelligence could help predict cyberattacks. April 19, 2016

MIT News. System predicts 85% of cyber-attacks using human input April 18, 2016

The Washington Post. New MIT algorithm rubs shoulders with human intuition in big data analysis Oct 19, 2015

Dailymail. Artificial Intelligence breakthrough as intuition algorithm beats humans in test Oct 16, 2015

Yahoo News. Struggling to find a data scientist? Get ready for an AI that can do the job instead Oct 19, 2015

Times Gazzette. MIT researchers unique computer system for replacing human intuition in Big Data Analysis Oct 18, 2015

IEEE Spectrum. Artificial Intelligence Outperforms Human Data Scientists Oct 20, 2015

Times of London. Trying to predict the future? Just use an algorithm Oct 20, 2015

UPI. MIT system outperforms human intuition with algorithms Oct 17, 2015

Christian Science Monitor. Is an MIT algorithm better than human intuition? Oct 19, 2015

Newsweek. An algorithm may be better than humans in breaking down big data Oct 19, 2015

KDnuggets. The Data Science Machine, or 'How To Engineer Feature Engineering' Oct 19, 2015

Interview on WBUR, Boston's NPR. Data Science Machine Oct 20, 2015

MIT News. Automating big-data analysis Oct 16, 2015

MIT News. Siting wind farms more quickly, cheaply Jul 17, 2015

MIT News. Helping students stick with MOOCs Jul 1, 2015

Yorokobu Magazine. Only 7 % of students complete the online courses. Here, some solutions to retain Nov 3, 2015

El Pais. El 'big data' ya no necesita a los humanos Nov 26, 2015

MIT News. Kalyan Veeramachaneni tackles some of the biggest bottlenecks holding back the data science industry. Feb 24, 2015

MIT News. The mathematics of taste Jan 24, 2012

Invited Talks

Upcoming talks

- Towards automating data science endeavors. Jan 5, 2016
  Nucleas Software India, Webinar.
- Teaching a computer to be a data scientist. Feb 17, 2016
  TTI/Vangaurd 2016 Conference on Big Understanding (invited).
- Data Science Foundry for MOOCs. April 7, 2016
  NSF Shape of Educational Data Meeting, GMU. (invited).

Past talks

- Data Science Machine Dec 11, 2015
  Schlumberger, Houston, Texas.
- Data Science Machine Dec 10, 2015
  VISA Research, California.
- Data Science Machine Oct 12, 2015
  GE Global Research Annual Whitney Symposium, Niskayuna, New York.
- Data Science Robot Oct 9, 2015
  ***TEDx**, Massachusetts.*
- Data Science Machine Oct 7, 2015
  2^{nd} Workshop on Machine Learning Algorithms and Applications, Nokia CTO's office.
- Towards making human interactions with data easy Jul 10, 2015
  NSF Big Data Brown Bag Seminars, Arlington, Virginia.
- Building Predictive Models from Large Repositories of Signals Data Jul 8, 2015
  NASA/NIA Big Data Analytics and Machine Intelligence Seminar, Langley, Virginia.
- Mining the big data from Massive Open Online Courses Jun 17, 2015
  MIT Club of New Delhi, New Delhi, India.
- Towards making human interactions with data easy Jun 17, 2015
  Aspiring Minds, New Delhi, India.
- The Human Data Interaction Project Jun 16, 2015
  Xerox Research Center India, Bangalore, India.
- Towards a Data Driven Society Jun 15, 2015
  Accenture HQ, Bangalore, India.
- Towards a Data Driven Society May 9, 2015
  MIT Club of New Hampshire and Philips Exeter Academy, PEA, New Hampshire.
- Copula Models and Generative Functions for Wind Farm Planning and Layout Mar 26, 2015
  IGERT Offshore Wind Energy Program, UMass, Amherst.
- Digital Learner Quantified and Towards MOOC Data Science Commons Jan 30, 2015
  HarvardX, Harvard University
- Towards making "human interactions with data" easy Jan 20, 2015
  Systems Engineering Advancement Research Initiative, MIT
- A Recommender System That Suggests Models and Parameters for Data Nov 12, 2014
  MIT Big Data Initiative Annual Meeting
- MLBlocks: Towards building machine learning blocks and predictive modeling for MOOC learner data Nov 5, 2014
  edX Invited talk (webinar)
- From JSON Lines to Latent Variable Models - Knowledge Mining MOOC Data May 28, 2014
  Keynote speaker - ASE Big Data Conference Stanford
- Where art thou big data ? – Identifying and Harnessing Sources of Data for MOOC Data Science May 14, 2014
  MIT xTalks
- The MOOCdb Project Mar 23, 2014
  Big Data in Education, BDE 2014, George Mason University

- beatDB: A Large Scale Physiological Waveform Feature Repository Dec 11, 2013
  NIPS 2013 Workshop ML for health care: Panel on Health Monitoring Systems
- Human Data Interaction: Developing novel approaches to scale data science Jun 26, 2014
  Invited talk, Accenture, Cambridge, MA
- How we are scaling data science by building next generation technologies? Apr 22, 2014
  Machine learning workshop for Jaguar Land Rover and Research
- Large Scale Machine Learning via FlexGP Jan 28, 2014
  MITRE and National Geospatial Intelligence Agency (NGA)

Advising

Supervision of Masters thesis (@ MIT)

1. Bennett Cyphers, MEng EECS *Ongoing*
   AnonML: Anonymous machine learning over a network of data holders.
2. Alec Anderson, MEng EECS *Ongoing*
   Deep mining at scale.
3. David Wong, MEng EECS *Ongoing*
   Build your own Deep Learning.
4. Katharine Xiao, MEng EECS *Ongoing*
   Automating generative modeling of databases.
5. Jonathan Johanneman, MFin *Ongoing*
   TBD
6. Zara Perumal, MEng EECS *Ongoing*
   TBD
7. John O'Sullivan, MEng EECS *Ongoing*
   Learn while you contribute: Novel ways to solicit human input for data science endeavors.
8. Neha Patki, MEng EECS 2016
   The synthetic data vault: Automating generative modeling for databases.
9. Benjamin Schreck, MEng EECS 2016
   What would a human ask?: Automatic generation of data science inquiries.
10. Sebastien Boyer, SM EECS/TPP 2016
    Ask me for a prediction: Transfer learning at scale.
11. Jason Wu, MEng EECS 2016
    The Model Factory: A new way to look at complex connected data through models.
12. Prashan Wanigasekara, SM SDM 2016
    Latent copula based state space models for physiological signals.
13. Sebastien Dubois (Visiting student) 2015
    Deep Mining: Copula-based hyper-parameter optimization for machine learning pipelines.
14. James Max Kanter, MEng EECS 2015
    The Data Science Machine: Emulating human intelligence in data science endeavors.
15. Edwin Zhang, MEng EECS 2015
    Image Miner: An architecture to support deep mining of images.
16. Alex Wang, MEng EECS 2015
    Feature Factory: A collaborative, crowd-sourced machine learning system.
17. Michael Wu, MEng EECS 2015
    The Synthetic Student: A machine learning model to simulate MOOC data.
18. Bryan Collazo, MEng EECS 2015
    Machine Learning Blocks.
19. Quentin Agren (Visiting student) 2014
    From click stream to learning trajectories, Bridging OpenEdx and MOOCdb

Co-supervision

20. Franck Dernoncourt, SM EECS. 2015
    BeatDB: An end-to-end approach to unveil saliencies from massive signal data sets

21. Kevin Wu, MEng EECS. 2015
DeepTuner: A system for search technique recommendation in program autotuning.
22. Chidube Ezeozue, SM EECS/TPP. 2013
Large-scale consensus clustering and data ownership considerations for medical applications.
23. Owen Derby, MEng EECS. 2013
FlexGP: a Scalable System for Factored Learning in the Cloud.
24. Elaine Han, MEng EECS. 2014
Modeling problem solving in Massive Open Online Courses
25. Dylan Sherry, MEng EECS. 2013
Exploiting multiple levels of parallelisms in FlexGP for big data sets
26. Alex Waldin (Visiting student) 2013
Learning blood pressure behavior from large blood pressure waveform repositories and building predictive models
27. Colin Taylor, MEng EECS. 2014
Stopout prediction in Massive Open Online Courses
28. Will Drevo, MEng EECS. 2014
Delphi: A distributed multi-algorithm, multi-user, self optimizing machine learning system. This thesis was turned into a patent.
29. Vineet Gopal, MEng EECS. 2014
PhysioMiner: A scalable cloud based framework for physiological waveform mining

Committee, advising team

1. Joshua Wayne Ingram 2012
[a]sorted Selection: Improving building performance and diversity using a new form of interactive evolutionary algorithm
2. Danielle Ramazotti 2012
An Observational Study: The affect of diuretics administration on outcomes of mortality and mean duration of I.C.U. stay

Undergraduate Advising

SuperUROPS:

Srinidhi Viswanathan (2014-15)	Elisa Castaner (2013-14),	Matt Susskind (2013-14),
Kevin Wen (2014-15)	Chau Vu (2013-14),	Sebastian Leon (2012-13),
Harrison Hunter (2013-14),	Nico Rakover (2013-14),	Ulzii Otgonbaatar (2012-13)

UAP (Senior thesis):

John O'Sullivan (S'15),	Max Kanter (S'14),	Brian Bell (S'13),
Preston Thompson (S'14),	Dennis Wilson (S'14),	Max Kolysh (S'13),
Kiarash Adl (S'14),	Deena Wang (S'14),	Will Drevo (S'13),
Michael Duplessis (S'14),	Sherwin Wu (F '14)	Constantin Berzan (Su'11)

UROPS:

Fernando Torija (Su '14)	Julian Gonzalez (S'13),	Sebastian Leon (F'12),
Favyen Bastani (Su '14)	Diyang Tang (S'13),	Ulzii Otgonbaatar (F'12),
Andrew Song (Su'13),	Elisa Castaner (S'13),	Dennis Wilson (Su'12),
Teasha Feldman-Fitzthum (Su'13),	Deborah Chen (S'13),	Adrian Orozco (F'11),
Elaine Han (Su'13),	Michael Wu (S'13),	Dylan Sherry (Su'11)
Temuge Enkhbaatar (S'13),	Diyang Tang (F'12),	
Dennis Wilson (S'13),	David Xiao (F'12),	

Service

Event organization

- Co-organizer- NIPS Data Driven Education Workshop Dec 11, 2013
NIPS, Lake Tahoe, California.
- Co-organizer- 1st Learning with MOOCs workshop Aug, 2014
MIT, Cambridge, Massachusetts.

Reviewer

- NSF Panel Reviewer 2015
- Reviewer for several conferences and journals

Teaching

This teaching experience is during gradudate school.

Teaching Assistant

Taught Recitations, designed assignments and projects. Conducted review sessions for midterm and final. Prepared a summary of class to help students with finals.
ELE 551 – Digital and Analog Communication Systems (Graduate level), Fall 2008.
ECS 691 – Fundamentals of Research, Fall 2008.
ELE 231 – Electrical Engineering Fundamentals -I (Undergraduate Level), Spring 2008.
ELE 351 – Systems and Signal Analysis, (Undergraduate Level), Fall 2006.
ELE 651 – Digital Communications (Graduate Level), Spring 2006.
ECS 102 – Introduction to Programming (C, C++)(Undergraduate Level), Spring 2002.

Instructor

Developed a new course on Matlab and its applications in engineering design. Designed the Lab Manual for the subsequent offering of the course.
ECS 200 – Introduction to MATLAB (Undergraduate Level, Fall 2007, Fall 2008)

Guest Lectures

CIS 700 – Evolutionary Algorithms(Graduate Level), Spring, 2004
Information Sharing Strategies in Particle swarm optimization.
CIS 700 – Evolutionary Algorithms (Graduate Level), Fall 2007.
Particle Swarm Optimization for Continuous, Binary and Discrete Optimization Problems.
ELE 651 – Digital Communications (Graduate Level), Spring 2006
Routing Protocols in Telecom Networks: Ant Net.

Patents

1. Veeramachaneni, K., Feldman-Fitzthum, T., and Cuesta Infante A., and O'Reilly U.-M, "Computer-implemented data analysis methods and systems for wind energy assessments," US Patent 0160373, Filing number 14/563418. Filed - December 2013. Granted - June, 2015.
2. Veeramachaneni U., Bassias C., Korrapati V., Veeramachaneni K., "Method and apparatus for identifying and detecting threats to an enterprise or e-commerce system," US Patent filed. Filing number 14/532,812. Filed- September 9, 2015.
3. Drevo, W., Veeramachaneni, K., O'Reilly, U. -M., "A distributed, multi-model, self-learning platform for machine learning," US Patent filed. Filing number PCT/US2015/059124. Under review.

Publications

Electronic copies of most recent publications are available at *my website*

Invited Contributions

1. L. Osadciw, K. Veeramachaneni, "Decision Level Fusion," *Encyclopedia of Biometrics*, S. Z. Li and A. Jain, Eds., Springer, 2008, pp. 593-597.
2. K. Veeramachaneni, L. A. Osadciw, P. K. Varshney, "An Evolutionary Algorithm Based Approach for Dynamic Thresholding in Multimodal Biometrics," In *Biometric Authentication* (Lecture Notes in Computer Science), Springer, 2004, pp. 671-677.
3. K. Veeramachaneni, "Hitoshi Iba, Topon Kumar Paul, Yoshohiko Hasegawa: Applied genetic programming and machine learning," Book review, *Genetic Programming and Evolvable Machines*, vol. 12, iss. 2, pp. 179-180, Jun 2011.

Book Chapters

4. N. Srinivas, K. Veeramachaneni, L. Osadciw,"Combining Correlated Data from Multiple Classifiers," in *Swarm Intelligence for Multi-objective Problems in Data Mining* (Studies in Computational Intelligence,

vol. 242), C. A. Coello Coello, S. Dehuri, S. Ghosh, Eds., pp. 259-281, 2009.

5. L. Osadciw, P. K. Varshney, K. Veeramachaneni, "Optimum Fusion Rules for Multimodal Biometric Systems," in *Multisensor Surveillance Systems: A Fusion Perspective*, Springer, 2003, pp. 265-285.
6. P-L. Noel, K. Veeramachaneni, U. M. O'Reilly, "Benchmarking Genetic Programming Symbolic Regression for Sensory Evaluation Modeling," in R. Riolo, E. Vladislavleva, J. H. Moore, *Genetic Programming: Theory and Practice IX* (Genetic and Evolutionary Computation), Springer, 2011, p. 173-194.
7. J. McDermott, K. Veeramachaneni and U.-M. O'Reilly, "FlexGP.py: Prototyping Flexibly-Scaled, Flexibly-Factored Genetic Programming for the Cloud," in *Genetic Programming Theory and Practice X* (Genetic and Evolutionary Computation), Springer, 2013, pp 205-221.
8. K. Veeramachaneni, X. Ye, U.-M. O'Reilly, "Techniques for Accurate Wind Resource Estimation by Modeling Statistical Dependency," *Computational Intelligent Data Analysis for Sustainable Development, Data Mining and Knowledge Discovery Series*, T. Yu, N. Chawla, S. Simoff, Eds., Taylor and Francis, 2012.

Journal Articles

9. Kalyan Veeramachaneni, Ignacio Arnaldo, Owen Derby, Una-May O'Reilly, "FlexGP: Cloud-Based Ensemble Learning with Genetic Programming for Large Regression Problems," Journal of Grid Computing, September 2015, Volume 13, Issue 3, pp 391-407.
10. Ignacio Arnaldo, Kalyan Veeramachaneni, Andrew Song, Una-May O'Reilly, "Bring Your Own Learner! A cloud-based, data-parallel commons for machine learning," To appear in IEEE Computational Intelligence Magazine. Special Issue on Computational Intelligence for Cloud Computing (Feb. 2015).
11. Fazenda P., Veeramachaneni, K., Lima, P., U.-M O'Reilly, "Using reinforcement learning to optimize occupant comfort and energy usage in HVAC systems," *Journal of Ambient Intelligence and Smart Environments*, Volume 6 Issue 6, November 2014 Pages 675-690.
12. K. Veeramachaneni, K. Vladislavleva, U.-M O'Reilly, "Knowledge Mining Sensory Evaluation Data," *Genetic Programming and Evolvable Machines*, vol. 13, no. 1, pp. 103-133, Jan 2011.
13. K. Veeramachaneni, K. Vladislavleva, U.-M O'Reilly, "Feature extraction from optimization samples via ensemble based symbolic regression," *Annals of Mathematics and Artificial Intelligence*, vol. 61, iss. 2, pp. 105-123, Feb 2011.
14. K. Veeramachaneni, L. Osadciw,"Biometric Sensor Management: Trade-offs in Time, Accuracy, and Energy," *IEEE Systems journal*, vol. 3, iss. 4, pp. 389-397, Dec 2009.
15. K. Veeramachaneni, L. Osadciw, "Situation Assessment and Autonomous Control and Optimization of Biometric Sensor Network," *International Journal of Biometrics*, vol. 1, no. 4, pp. 495-524, Jul 2009.
16. K. Veeramachaneni, L. Osadciw, P. K.Varshney, "An adaptive multimodal biometric management algorithm," *IEEE Transactions on Systems, Man, and Cybernetics, Part C: Applications and Reviews*, vol. 35, no. 3, pp. 344-356, Aug 2005. **Cited: 122**

Conference Papers (Competitive and peer-reviewed)

17. J.M. Kanter, K. Veeramachaneni, "Deep Feature Synthesis- Towards Automating Data Science Endeavors," in proceedings of the 2nd IEEE/ ACM conference on Data Science and Advanced Analytics (DSAA) 2015, pp 1-10. IEEE, 2015.
18. S. Boyer, B.U. Gelman, B. Schreck, K. Veeramachaneni, "Data Science Foundry for MOOCs," in proceedings of the 2nd IEEE/ACM international conference on Data Science and Advanced Analytics (DSAA) 2015, pp 1-10. IEEE, 2015.
19. I. Arnaldo, U.-M. O'Reilly, K. Veeramachaneni, "Building Predictive Models via Feature Synthesis," in proceedings of the 17th ACM Genetic and Evolutionary Computation Conference (GECCO) 2015, pp 983-990. ACM, 2015.
20. K. Veeramachaneni, A. Cuesta-Infante, U.-M. O'Reilly, "Copula Graphical Models for Wind Resource Estimation," in proceedings of the 24th international conference on Artificial Intelligence (IJCAI) 2015, pp 2646-2654. AAAI Press, 2015.
21. F. Dernoncourt, K. Veeramachaneni, U.- M. O'Reilly, "Gaussian Process-based Feature Selection for Wavelet Parameters: Predicting Acute Hypotensive Episodes from Physiological Signals," in proceedings of the 28th IEEE international symposium on Computer-Based Medical Systems 2015, pp 145-150.

IEEE, 2015.

22. S. Boyer, K. Veeramachaneni, "Transfer Learning for Predictive Models in Massive Open Online Courses," in proceedings of 17th International Conference on Artificial Intelligence in Education 2015, pp 54-63. Springer, 2015.
23. Y.Ding, J. Ansel, K. Veeramachaneni, X. Shen, U.-M. O'Reilly, S. Amarasinghe, "Autotuning Algorithmic Choice for Input Sensitivity," in proceedings of the 36th ACM SIGPLAN conference on Programming Language Design and Implementation (PLDI) 2015, vol 50 issue 6, pp 379-390. ACM, 2015.
24. J.Ansel, S. Kamil, K. Veeramachaneni, J. Ragan-Kelley, J. Bosboom, U.-M. O'Reilly and S. Amarasinghe, "OpenTuner: An Extensible Framework for Program Autotuning," in proceedings of the 23rd ACM international conference on Parallel Architectures and Compilation 2014, pp 303-316. ACM, 2014.
25. D. Wilson, S. Cussat-Blanc, K. Veeramachaneni, H. Luga, U.-M. O'Reilly, "A Continuous Developmental Model for Wind Farm Layout Optimization," in proceedings of the 16th ACM Genetic and Evolutionary Computation Conference (GECCO) 2014, pp 745-752. ACM, 2014.
26. K. Veeramachaneni, O. Derby, D. Sherry, U.-M. O'Reilly, "Learning Regression Ensembles with Genetic Programming at Scale," in proceedings of the 15th ACM Genetic and Evolutionary Computation Conference (GECCO) 2013, pp 1117-1124. ACM, 2013.
27. D. Wilson, E.Awa, S. Cussat-Blanc, K. Veeramachaneni, U.-M. O'Reilly, "On Learning to Generate Wind Farm Layouts," in proceedings of the 15th ACM Genetic and Evolutionary Computation Conference (GECCO) 2013, pp 767-774. ACM, 2013.
28. E. Hemberg, C. Berzan, K. Veeramachaneni, U. -M. O'Reilly, "Introducing Graphical Models to Analyze Genetic Programming Dynamics," in proceedings of the 12th workshop on Foundations of Genetic Algorithms 2013, pp 75-86. ACM, 2013.
29. E. Hemberg, K. Veeramachaneni, J. McDermott, C. Berzan, U. -M. O'Reilly, "An Investigation of Local Patterns for Estimation of Distribution Genetic Programming," In proceedings of the 14th ACM Genetic and Evolutionary Computation Conference (GECCO) 2012, pp 767-774. ACM, 2012.
30. K. Vladislavleva, K. Veeramachaneni, Una-May O'Reilly, "Knowledge Mining with Genetic Programming Methods for Variable Selection in Flavor Design," in proceedings of the 12th ACM Genetic and Evolutionary Computation Conference (GECCO) 2010, pp 941-948. ACM, 2010.
31. K. Veeramachaneni, K. Vladislavleva, U.-M. O'Reilly, "Evolutionary Optimization of Flavors," In proceedings of the 12th ACM Genetic and Evolutionary Computation Conference (GECCO) 2010, pp 1291-1298. ACM, 2010.
32. K. Veeramachaneni, K. Vladislavleva, U.-M. O' Reilly, "Feature Extraction from Optimization Data via DataModeler's Ensemble Symbolic Regression," Learning and Intelligent Optimization (LION), Lecture Notes in Computer Science, vol 6073, pp 251-265. Springer, 2010.
33. K. Veeramachaneni, T. Peram, C. K. Mohan, L. Osadciw, "Optimization Using Particle Swarm with Near Neighbor Interactions," in proceedings of the 7th ACM Genetic and Evolutionary Computation Conference (GECCO) 2003, volume 2723, pp 110-121, Springer, 2003.

Conference Papers (Peer-reviewed)

34. K. Veeramachaneni, U.-M. O'Reilly, K. Adl, "Feature Factory: Crowdsourcing Feature Discovery," in proceedings of the 2nd ACM Conference on Learning@ Scale 2015, pp 373-376. ACM, 2015.
35. I. Arnaldo, K. Veeramachaneni and U.-M. O'Reilly, "Flash: A GP-GPU Ensemble Learning System for handling Large Datasets," Genetic Programming. In proceedings of the 17th European Conference on Genetic Programming (EuroGP) 2014, pp 13-24. Springer 2014.
36. M. Vitali, U.-M. O'Reilly, K. Veeramachaneni, "Modeling Service Execution on Data Centers for Energy Efficiency and Quality of Service Monitoring," Systems, Man, and Cybernetics (SMC). In proceedings of the IEEE International Conference on Systems, Man and Cybernetics, pp. 103-108. IEEE, 2013.
37. D. Wilson, K. Veeramachaneni, U. -M. O'Reilly, "Large Scale Island-Model CMAES for High Dimensional Problems," in proceedings of the EvoPAR track of the Evo Applications Conference 2013, pp 519-528. Springer, 2013.
38. O. Derby, E. Hemberg, K. Veeramachaneni, U. -M. O'Reilly, "Cloud Driven Design of Island Model

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