

Ahmed Jamil Kattan

Computer Science and Information Systems

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Objective

Apply most advanced research findings from the field of Machine Learning and Computational Intelligence to improve decision making process and support improving people life style whether directly and indirectly. Moreover, utilise my research skills to push boundaries of science and design new algorithms to solve complex problems.

Education

PhD Degree: University of Essex (United Kingdom)

Dep. Computer Science.

Evolutionary Computations and Machine Learning. 2006- 2010

Supervisor: Prof. Riccardo Poli

Master Degree: University of Essex (United Kingdom)

Dep. Computer Science.

Software Engineer. 2005 - 2006

Bachelor Degree: Jordan University of Science and Technology (Kingdom of Jordan)

Dep. Computer Science and Information Systems.

Work Experience

Deputy Minister of Labor for Labor Policies

Ministry of Labor – Saudi Arabia

August 2015 – Pending.

Saudi Arabia

- As deputy minister, my main role is to support the minister of labor in relation to improving labor policies. I am responsible of recommending improvements to labor policies with the main objective of reducing unemployment rate and design strategic plans as per the ministry's vision. I am leading team of researchers and consultants to simulate the effects of different policies on the economy. As a researcher in Computational Intelligence, I am applying computational intelligence and machine learning techniques to design effective policies using a tool which I designed called NAD.

Assistant Professor

Um Al Qura University –Computer Science Department

April 2011 – August 2015.

Saudi Arabia

- 2011 – 2013: I was appointed as Head of the Computer Science Department. My primary responsibility as HoD is to establish a shared strategic vision for the department with the University, ensuring that its programmes, research and academic structures are following the University standards, and are able to leverage advantage to both the department and the University as a whole. My role has overall responsibility for leading and managing the department supported by relevant academic and administrative management teams. In addition, I was leading the department to get the *Accreditation Board for Engineering and Technology (ABET)*. **In 2013, under my HoD management, the department was accredited for full six-years**
- 2013 – 2015: As a faculty member in the Computer Science Department. I am teaching several courses that are related to my research area. In addition, I am a

member in various committees in the department. Furthermore, I am leading several research projects and external collaborations with other research institutes.

Consultant

Ministry of Labour – Jobs Nationalisation project - Traffic lights -
June 2011 – August 2015.

Riyadh- Saudi Arabia

Providing objective advice with the aim of improving the jobs nationalisation process. To this end, I am designing algorithms based on Evolutionary Computation to optimise multiple parameters from the Saudi labour market and recommend the best plan of actions.

Research Associate

Loughborough University – Department of Computer Science
December 2010 – February 2012.

Loughborough- United Kingdom

Main Research Associate with the [EPSRC project](#) 'Designing Mechanisms for Automated Resource Allocation'. This project lays at the intersection of computer science and game theory.

GTA (Graduate Teaching Assistant)

University of Essex – School of Electronic and Computing Systems-
October 2008 – July 2010.

Essex- United Kingdom

Lab demonstrator for CE111 "Problem Solving and Essential skills" and CE221 "C++ Programming". This role involved supervising, guiding and marking students' projects.

Course Facilitator

University of Essex – [Learning and Teaching Unit](#)

October 2007 – January 2010.

Essex – United Kingdom

I was a group leader in a workshop that aimed to provide participants with a range of practical skills required for the early stages of PhD study.

Computer Programmer

IV "Intergraded Vision"

May 2005 - October 2005.

Jeddah - Saudi Arabia

I designed solutions for the E-Government project

Professional Activities

(Ordered chronologically)

Data and Models in Engineering, Science, and Business – Professional Training

Massachusetts Institute of Technology (MIT) - (Boston - USA) June 2015.

A course that allows participants to fit data to models. Topics include linear least squares, non-linear least squares, singular value decomposition, sensitivity analysis, Levenberg-Marquardt and ridge regression algorithms, experimental design, parameter error estimation (Jackknife), genetic algorithm, annealing algorithm, and neural networks. Introduces principles leading to rapid application of methods.

Advanced Negotiation Strategies: Mastering the Art and Science of Negotiation – Professional Training

Harvard University (Boston - USA) April 2015.

Going beyond basic negotiation tactics, this highly interactive program delves into the strategic thinking and planning that drive success in simple or multiparty negotiations. This fast-paced learning experience includes negotiation exercises, analysis of business cases, and discussion of challenges candidate may face at the bargaining table. The course focus on developing more sophisticated negotiating skills, learn how to avoid common deal making

pitfalls, and emerge prepared to conduct a wider range of complex negotiations with confidence.

Negotiation Skills: Strategies for Increased Effectiveness – Professional Training

Harvard University (Boston - USA) April 2015.

This negotiation training program, provides insight into the habits of dealmakers. Through a series of group exercises, the course delivers a learning of how to execute proven tactics, refine your personal negotiating style, and improve the ability to bargain successfully and ethically in any situation.

Rapid Robotics: Autonomous Systems with Open Source Software – Professional Training

Massachusetts Institute of Technology (MIT) - (Boston - USA) August 2014.

Hands-on applied robotics software programming. Using ROS robotics framework and open source autonomy libraries to develop advanced autonomous system behaviors such as person-following, patrolling, exploration, and map-making on a small ground robot.

PMP for Project Managers – Professional Training

Institute of Systems and Science – Singapore National University (Singapore) December 2013.

Master each of the Project Management knowledge areas - Integration, Scope, Time, Cost, Quality, Human Resource, Communications, Stakeholders, Risk and Procurement; and their interrelationships <https://www.iss.nus.edu.sg>

Understanding and Analysing Data – Professional Training

Royal Statistics Society – London (United Kingdom) October 2013.

Understand approaches to statistical inference including hypothesis testing and confidence interval estimation. www.rss.org.uk

Bayesian Analysis using WinBUGS - Professional Training

Centre for Census and Survey Research – University of Manchester (United Kingdom) January 2013.

Introduce quantitative researchers to the basic principles of Bayesian inference and simulation-based methods for estimating Bayesian models. www.ccsr.ac.uk

Research Visit

Centre of Computational Intelligence – Nanyang Technological University (Singapore) 2012.

I worked closely with Prof. Yew-Soon Ong developing a new form of Genetic Programming referred to as sGP. <http://www.c2i.ntu.edu.sg>

Digital Marketing - Professional Training

Chartered Institute of Marketing (United Kingdom) July 2012.

Professional training: Understand the key elements of building effective digital marketing campaigns and strategies. www.cim.co.uk

PhD CEEC - PhD Computer science and Electronic Engineering Conference.

University of Essex (United Kingdom), July 2009.

I am the founder of CEEC postgraduate conference series.

GRADschool – Training and development program for postgraduate researchers.

University of Essex (United Kingdom), July 2008.

Organised by <http://vitae.ac.uk/>

Graduate Teaching Assistant Training.

University of Essex (United Kingdom), March 2007.

Research Training for PhD Studies. - Professional Training

University of Essex (United Kingdom), December 2006.

MCP (Microsoft Certification Professional)

Developing and implementing Web base application with C#.Net. 2005 July.

MCP (Microsoft Certification Professional)

Developing and implementing Windows base application with C#.Net. 2005 March.

External Recognition

- **Consultancy work:** I was invited expert to give advice as a consultant on various matters related to strategy building and data analysis for
 - **Gulf research centre** 2014 – 2015
 - **K-corp – IT company** 2014 – 2015
 - **CPD powerline ltd, UK** 2011 – 2015
 - **Prince Migren University (a.k.a Al Bayan colleges)** 2013 – 2014
 - **Saudi Ministry of Labour** 2011 – 2015

- **Seminars**
 - **University of Connecticut – Computer Science Department** (Connecticut – USA)
Invited seminar presentation, title “Evolutionary Computation: Commercial Perspective”. April 2015.
 - **University College of Dublin – Complex & Adaptive Systems Laboratory** (Ireland – Dublin)
Invited seminar presentation, title “Real-World Applications of Evolutionary Computation: Evolve policies for labour market”. March 2014.
 - **Nanyang Technological University** (Singapore)
Invited seminar presentation, title “Evolutionary Computation: End-users perspectives”. July 2013.
 - **North Atlantic Treaty Organization (NATO) College of Defence** (Italy – Rome) Invited seminar presentation, title “Cyber Security Mitigation Strategies: A Computational Intelligence Perspective”, April 2013.
 - **Purdue University – School of Computer Engineering** (Indianapolis-USA)
Invited seminar presentation, title “Evolutionary Computation: Practice and Theory (Projects in Saudi Arabia)”, October 2012.
 - **Massachusetts Institute of Technology - Evolutionary Design Research Group** – (Boston - USA) Seminar presentation, title “Evolutionary Computation: Practice and Theory (Projects in Saudi Arabia)”, October 2012.
 - **CEEC 2011** – 3rd Computer science and Electronic Engineering Conference (United Kingdom), July 2011.
Invited Tutorial entitled “Introduction to Genetic Programming: Survival of the fittest”.
 - **Learning and Teaching Unit** – Workshop on presenting a conference paper. University of Essex (United Kingdom), March 2010.
I was an invited speaker at a one-day workshop aiming to provide research students with tips and advices on conference presentations.

- **Reviewer**
 - **IEEE Transaction on Systems, Man, and Cybernetics-Part B** - 2012 – Pending.
 - **IEEE Transaction on Evolutionary Computation** - 2012 – Pending.
 - **Elsevier Informatics and Computer Science Intelligent Systems Applications** - 2012 – Pending.
 - **KACST** – King Abdulaziz City of Science and Technology, Review grant applications 2011 – pending.
 - **ROPEC** – IEEE XIV Reunión de Otoño de Potencia, Electrónica y Computación 2013 - 2014.
 - **CEC** - IEEE Congress on Evolutionary Computation 2013-2015.
 - **EuroGP** – European Conference on Genetic Programming 2012-2016.
 - **EvoFin** – European Conference on European Conference on the Applications of Evolutionary Computation 2014-2015.
 - **GECCO** – Genetic and Evolutionary Computation Conference 2013-2015.
 - **ECTA** – International Conference on Evolutionary Computation Theory and Applications 2013 -2014.
 - **CEEC**- IEEE Computer science and Electronic Engineering Conference, 2009-2010, 2012.

- **CIG** - IEEE Conference on Computational Intelligence and Games 2011.
- **ICADIWT** – IEEE International Conference on the Applications of Digital Information and Web Technologies, 2009-2010.
- **NDT** – IEEE International Networked and Digital Technology. 2009.
- **Member of the Intelligent Systems Applications Technical Committee (ISATC) of the Computational Intelligence Society (CIS) of the Institute of Electrical and Electronic Engineers (IEEE).** February 2013 – **Pending.**
- **Member of the editorial board of International Journal of Ubiquitous Computing (IJC)**
Computer Science Open Access Journals, August 2010.
- **Invited guest editor** Journal of Discrete Dynamics in Nature and Society, Hindawi Publishing Corporation 2015.

Research Grants

- **Funded research:** PI in research project funded from the Ministry of Labour to work on improving the jobs nationalisation process and optimise the Saudi labour market behaviour using Machine Learning. August 2012 – **Pending.**
- **Research Grant:** 2 years research project funded from KACST entitled “Intelligent Ubiquitous localization and tracking of people” 2 millions Saudi Riyals. March 2014 – March 2016.
- **Funded research:** PI in research project funded from the Municipality to analysis citizens’ behaviour from registered customer service complaints. May 2014 – August 2014.

International Peer-Reviewed Publications

1. **Ahmed Kattan**, Doctor Faiyaz, Muhammed Arif, *Two Brains Guided Interactive Genetic Algorithm*, In IEEE International Conference on Systems, Man, and Cybernetics SMC2015, Hong Kong.
2. Alexandros Agapitos and Michael O'Neill and Miguel Nicolau and David Fagan and **Ahmed Kattan** and Kathleen Curran. *Deep Evolution of Feature Representations for Handwritten Digit Recognition*. In IEEE Congress on Evolutionary Computation (CEC), pages 2452-2459, Sendai, Japan, 2015. IEEE Press.
3. **Ahmed Kattan** and Shaeen Fatima, and Mohamed Arif, *An Unsupervised Learning Framework Based on Genetic Programming*, Information Sciences, Elsevier, November 2014
4. **Ahmed Kattan** and Yew-Soon Ong, *Surrogate Genetic Programming: A Semantic Aware Evolutionary Search*, Information Sciences, Elsevier, November 2014
doi:10.1016/j.ins.2014.10.053
5. **Ahmed Kattan** and Yew-Soon Ong, *Bayesian Inference to Sustain Evolvability in Genetic Programming*, The 18th Asia Pacific Symposium on Intelligent and Evolutionary Systems (IES), Singapore 2014.
6. Yong-Hyuk Kim, Alberto Moraglio, **Ahmed Kattan**, and Yourim Yoon, *Geometric Generalisation of Surrogate Model-Based Optimisation to Combinatorial and Program Spaces*, Mathematical Problems in Engineering, Hindawi Publishing Corporation, Volume 2014 (2014), Article ID 184540, 10 pages.
7. **Ahmed Kattan**, Michael Kampouridis, Yew-Soon Ong, and Khalid Mehamdi, *Transformation of Input Space using Statistical Moments: EA-Based Approach*, IEEE World Congress on

Computational Intelligence (WCCI), Beijing-China, 2014.

8. **Ahmed Kattan**, Michael Kampouridis, and Alexandros Agapitos, *Generalisation Enhancement via Input Space Transformation: A GP Approach*, Proceedings of the 14th European Conference on Evolutionary Computation in Combinatorial Optimisation, Springer, Granada-Spain, 2014. ([*Nominated for Best Paper Award*](#))
9. Alexandros Agapitos, James McDermott, Michael O'Neill, **Ahmed Kattan**, Anthony Brabazon, *Higher Order Functions for Kernel Regression*, Proceedings of the 14th European Conference on Evolutionary Computation in Combinatorial Optimisation, Springer, Granada-Spain, 2014.
10. **Ahmed Kattan**, Yew-Soon Ong, and Edgar Galván-López, *Multi-Agent Multi-Issue Negotiations with Incomplete Information: A Genetic Algorithm Based on Discrete Surrogate Approach*, Annual IEEE Congress on Evolutionary Computation (CEC), Mexico 2013.
11. Edgar Galvan-Lopez, Brendan Cody-Kenny, Leonardo Trujillo and **Ahmed Kattan**, *Using Semantics in the Selection Mechanism in Genetic Programming: a Simple Method for Promoting Semantic Diversity*, Annual IEEE Congress on Evolutionary Computation (CEC), Mexico 2013.
12. **Ahmed Kattan** and Shaheen Fatima, *Agendas and Strategies for Negotiation in Dynamic Environments: A Surrogate Based Approach*, Proceedings of the 17th annual conference on Genetic and evolutionary computation, Philadelphia, USA, 2012. ACM.
13. **Ahmed Kattan** and Mohamed Arif, *PSO Based on Surrogate Modeling as Meta-Search to Optimise Evolutionary Algorithms Parameters*, Proceedings of the 17th annual conference on Genetic and evolutionary computation, Philadelphia, USA, 2012. ACM.
14. **Ahmed Kattan** and Edgar Galván-López, *Evolving Radial Basis Function Networks via GP for Estimating Fitness Values using Surrogate Models*, IEEE World Congress on Computational Intelligence (WCCI), Brisbane-Australia, 2012.
15. **Ahmed Kattan** and Shaheen Fatima, *PSO as a Meta-Search for Hyper-GA System to Evolve Optimal Agendas for Sequential Multi-Issue Negotiation*, IEEE World Congress on Computational Intelligence (WCCI), Brisbane-Australia, 2012.
16. Adnan Fakh and **Ahmed Kattan**, *Recurrent Genetic Algorithm: Sustain Evolvability*, Proceedings of the 12th European Conference on Evolutionary Computation in Combinatorial Optimisation, Springer, Malaga-Spain, 2012.
17. Edgar Galvan, Leonardo Trujillo, James McDermott, **Ahmed Kattan**, *Locality in Continuous Fitness-Valued Cases and Genetic Programming Difficulty*, EVOLVE-A Bridge between Probability, Set Oriented Numerics, and Evolutionary Computation, pp41--56, Springer Berlin Heidelberg, Mexico City, 2012.
18. Shaheen Fatima and **Ahmed Kattan**, *Evolving Optimal Agendas for Package Deal Negotiation*, Proceedings of the 13th annual conference on Genetic and evolutionary computation conference (GECCO), Dublin, Ireland, 2011. ACM. ([*Nominated for Best Paper Award*](#))
19. **Ahmed Kattan** and Riccardo Poli. 2011. *Evolution of human-competitive lossless compression algorithms with GP-zip2*. Genetic Programming and Evolvable Machines 12, 4 (December 2011), 335-364.
20. Alberto Moraglio and **Ahmed Kattan**, *Geometric Generalisation of Surrogate Model Based Optimisation to Combinatorial Spaces*, Proceedings of the 11th European Conference on Combinatorial Optimisation, Springer, pages 142-154, Torino-Italy, 2011.
21. Edgar Galván-López, Riccardo Poli, **Ahmed Kattan**, Michael O'Neill and Anthony Brabazon, *Neutrality in evolutionary algorithms... What do we know?*, Journal of Evolving Systems, Springer Berlin / Heidelberg, ISSN: 1868-6478, March 2011, pages 1-19.

22. **Ahmed Kattan**, *Universal Intelligent Data Compression Systems: A Review*, Proceedings of the 2nd Computer Science and Electronic Engineering Conference, Colchester, ISBN: 978-1-4244-9030-1, United Kingdom, IEEE, 2010.
23. **Ahmed Kattan** and Riccardo Poli, *Evolutionary Synthesis of Lossless Compression with GP-zip3*, IEEE World Congress on Computational Intelligence, ISBN: 978-1-4244-6909-3, Spain, Barcelona, 2010. (*Nominated for Best Paper Award*)
24. **Ahmed Kattan**, Edgar Galv´an-L´opez, Riccardo Poli and Michael O’Neill, *GP-fileprints: File Types Detection using GP*, Proceedings of the 13th European Conference on Genetic Programming, A.I. Esparcia-Alcazar et al. (Eds.): EuroGP 2010, LNCS 6021, pp. 134--145. Springer, Turkey- Istanbul, 2010.
25. **Ahmed Kattan**, Alexandros Agapitos and Riccardo Poli, *Unsupervised Problem Decomposition using Genetic Programming*, Proceedings of the 13th European Conference on Genetic Programming, A.I. Esparcia-Alcazar et al. (Eds.): EuroGP 2010, LNCS 6021, pp. 122--133. Springer, Turkey- Istanbul, 2010.
26. **Ahmed Kattan**, Mohammed AL-Mulla, Francisco Sepulveda and Riccardo Poli, *Detecting Localised Muscle Fatigue during Isometric Contraction using Genetic Programming*, International Conference on Evolutionary Computation, IJCCI Springer, pages 292—296, Madeira – Portugal, 200
27. **Ahmed Kattan** and Riccardo Poli, *Genetic programming as a predictor of Data Compression saving*, Artificial Evolution, LNCS Springer, Strasbourg- France, 2009.
28. Mohmaed R. Al-Mulla, Francisco Sepulveda, Martin Colley and **Ahmed Kattan**, *Classification of localised muscle fatigue with Genetic Programming on sEMG during isometric contraction*, 31st Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBC 2009,USA.
29. **Ahmed Kattan** and Riccardo Poli, *Evolutionary Lossless Compression with GP-ZIP**, Proceedings of the 10th annual conference on Genetic and evolutionary computation conference (GECCO), pages 1211-1218, Atlanta, GA, USA, 2008. ACM.
30. **Ahmed Kattan** and Riccardo Poli, *Evolutionary Lossless Compression with GP-ZIP*, IEEE World Congress on Computational Intelligence, Hong Kong, 2008. ISBN: 978-1-4244-1823-7, IEEE Press.
31. Eyas El-Qawasmeh and **Ahmed Kattan**, *Development and investigate of a novel compression technique using Boolean minimisation*, Neural Network World, International Journal on Non-Standard Computing and Artificial Intelligence - Czech Republic 2006.
32. Eyas El-Qawasmeh and **Ahmed Kattan**, *Developing a New Technique for Data Compression*, IADIS conference -International Association for Development of the Information Society, pp. 365-373, Portugal 2005.
33. Eyas El-Qawasmeh and **Ahmed Kattan**, *Reversing K-MAP Usage for Developing a new Compression Algorithm*, ACIT conference, Algeria 2004.

Online Articles

1. ["Form authentication and authorization in ASP.NET"](http://codeproject.com), codeproject.com- 21 Apr 2006.
2. ["How to use Crystal Reports with Access database in C#"](http://codeproject.com), codeproject.com- 3 Jun 2005.
3. ["How to link to an Access Database in a C# Application"](http://codeproject.com), codeproject.com- 21 Sep 2004.
4. ["How to use Microsoft Agent in C#"](http://codeproject.com), codeproject.com- 8 Sep 2004.

Skills

| Category | Skill | Level |
|---------------------------------|------------------|--------------|
| Programming | C++ | Expert |
| | Java | Expert |
| | VB | Intermediate |
| | C# | Expert |
| | VC++ | Expert |
| | VBA | Expert |
| Web Design | HTML | Expert |
| | ASP.Net | Expert |
| | XML | Expert |
| | XSL | Expert |
| | VB Script | Intermediate |
| | ASP | Intermediate |
| | Java Script | Intermediate |
| | JSP | Intermediate |
| Numerical Analysis | MATLAB | Intermediate |
| | MiniTab | Intermediate |
| Database | Microsoft Access | Expert |
| | Oracle | Expert |
| | Microsoft SQL | Expert |
| UML (Unified modeling Language) | Rational Rose | Expert |
| | Visio | Expert |
| Microsoft Office Package | | Expert |

Awards

July 2013

Research-visit grant from Nanyang Technological University, School of Computer Engineering – Centre of Computational Intelligence (C2i) in Singapore.

Membership

- [SIG-EVO](#): I am a member of ISGEC (International Society for Genetic and Evolutionary Computation) now becomes the ACM special interest group SIG-EVO.
- [ISATC](#): I am a member of the Intelligent Systems Applications Technical Committee (ISATC) of the Computational Intelligence Society (CIS) of the Institute of Electrical and Electronic Engineers (IEEE).

Languages

| | | |
|---------|----------------|------------------|
| Arabic | Native | |
| English | Fluent speaker | Read/Write/Speak |
| Spanish | Beginner | Read/Write/Speak |

Career timeline

