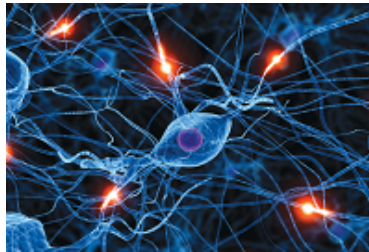




## Research Frontier

### Domain Transfer for Deep Natural Language Generation from Abstract Meaning Representations

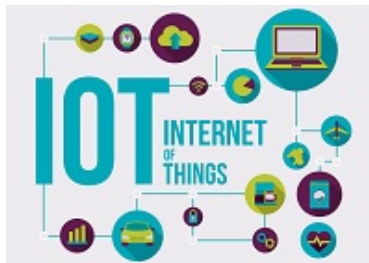
In this article, we focus on the problem of domain adaptation for natural language generation. We show how linguistic knowledge from a source domain, for which labelled data is available, can be adapted to a target domain by reusing training data across domains. As a key to this, we propose to employ abstract meaning representations as a common semantic representation across domains. We model natural language generation as a long short-term memory recurrent neural network encoder-decoder, in which one recurrent neural network learns a latent representation of a semantic input, and a second recurrent neural network learns to decode it to a sequence of words. We show that the learnt representations can be transferred across domains and can be leveraged effectively to improve training on new unseen domains. Experiments in three different domains and with six datasets demonstrate that the lexical-syntactic constructions learnt in one domain can be transferred to new domains and achieve up to 75-100% of the performance of in-domain training.



IEEE Computational Intelligence Magazine, Aug. 2017

### A Model-Driven Methodology for the Design of Autonomic and Cognitive IoT-Based Systems: Application to Healthcare

Inspired from the human nervous system and cognitive abilities, we have proposed a set of autonomic cognitive design patterns that alleviate the design complexity of smart IoT-based systems, while taking into consideration big data and scalability management. The ultimate goal of these patterns is providing generic and reusable solutions for elaborating flexible smart IoT-based systems able to perceive the collected data and provide decisions. These patterns are articulated within a model-driven methodology that we have proposed to incrementally refine the system functional and nonfunctional requirements. Following the proposed methodology, we have combined and instantiated a set of patterns for developing a flexible cognitive monitoring system to manage patients' health based on heterogeneous wearable devices. We have highlighted the gained flexibility and demonstrated the ability of our system to integrate and process heterogeneous large-scale data streams. Finally, we have evaluated the system performance in terms of response time and scalability management.



IEEE Transactions on Emerging Topics in Computational Intelligence, Ju

### Feature Selection Based on Structured Sparsity: A Comprehensive Study

## Important Message

### ★ Call-for-Proposals: Activity Promotion Grants

IEEE CIS has strategic plans to promote member activities through chapters and set up an activity promotion grant. We accept proposals until **Dec. 1, 2017** or the funding has all been used up. ([Details](#))

### ★ Proposals for IEEE CIS Conferences in 2019

Proposals for the organization of IEEE CIS financially sponsored conferences in 2019 must be submitted as soon as possible, and no later than **Dec. 31, 2017**. ([Details](#))

### ★ Call for Senior Member Applications

The IEEE CIS Senior Members Subcommittee encourages you to consider applying to become a Senior Member, and we can assist you with the senior member promotion. ([Details](#))

## CIS Conferences

### ★ Conference Calendar (2017-2018)

### ★ Seventh Joint IEEE International Conference on Developmental Learning

Lisbon, Portugal  
Sep. 18-21, 2017

Structured sparsity-inducing feature selection (SSFS) methods have been widely studied in the last few years, and a number of algorithms have been proposed. In this paper, we attempt to provide a survey on various SSFS methods, including their motivations and mathematical representations. We then explore the relationship among different formulations and propose a taxonomy to elucidate their evolution. We group the existing SSFS methods



into two categories, i.e., vector-based feature selection (feature selection based on lasso) and matrix-based feature selection (feature selection based on  $l_{r,p}$ -norm). Furthermore, FS has been combined with other machine learning algorithms for specific applications, such as multitask learning, multilabel learning, multiview learning, classification, and clustering. This paper not only compares the differences and commonalities of these methods based on regression and regularization strategies, but also provides useful guidelines to practitioners working in related fields to guide them how to do feature selection.

IEEE Transactions on Neural Networks and Learning Systems, Jul. 2017

## 5 Minutes with Dr. Gary Fogel

IEEE CIS Student Activities Subcommittee invites you to get to know the pioneers and experts in the Computational Intelligence through our new feature "5 minutes with..."

Our first "5 minutes with" focuses on pioneer Dr. Gary Fogel. Read all about Gary below and don't forget to say "Hello" at the next IEEE CIS Conference.



1. What is your title, full name, and place of work?  
Dr. Gary Bryce Fogel, CEO Natural Selection, Inc., San Diego, California.
2. What grade of member in CIS are you?  
IEEE Fellow, IEEE CIS Adcom member.
3. How long have you been a member of CIS?  
Since CIS became a society in 2001.
4. One reason why you are a member of CIS.  
To help the use of computational intelligence expand to include solutions to as many real-world problems as possible.
5. What is your typical working day?  
I'm an early riser. I usually start my day at 5:45am and get to the office by about 7:30am. My work day usually ends around 5:30pm or 6pm. In between I am usually on a series of teleconferences with clients or having internal project meetings. I'm balancing many projects at the same time all the time at the office.
6. What is your ideal weekend?  
Either spending time with family, or flying radio-controlled model sailplanes with friends. Check out YouTube videos for F3K disc launch gliding and you'll be hooked!
7. Give one interesting fact about yourself:  
I've established 11 world records for radio-controlled aero models of various types.
8. What are you reading, watching or listening to at the moment:  
I enjoy playing electric guitar and bass, mainly instrumental rock are Kiko Loureiro's and Andy Timmons.
9. Favourite place:  
Anywhere above 3000m in the Sierra Nevada mountains, especially in areas with no

★ 2017 IEEE International Conference on Data Science and Advanced Analytics (DSAA 2017)  
Tokyo, Japan  
Oct. 19-21, 2017

★ 2017 IEEE Latin American Conference on Computational Intelligence (LA-CCI 2017)  
Arequipa, Peru  
Nov. 8-10, 2017

★ 2017 IEEE Symposium Series on Computational Intelligence (SSCI 2017)  
Hawaii, USA  
Nov. 27-Dec. 1, 2017

★ 2018 IEEE Conference on Computational Intelligence in Bioinformatics and Computational Biology (CIBCB 2018)  
Missouri, USA  
May 30-Jun. 2, 2018

★ 2018 IEEE World Congress on Computational Intelligence (WCCI 2018)  
Rio de Janeiro, Brazil  
Jul. 8-13, 2018  
**(SS/Wksp Proposal: Dec. 15)**

Editor

Chuan-Kang Ting  
National Chung Cheng University  
Taiwan  
Email: ckting@cs.ccu.edu.tw

cell phone coverage.

10. Person you would most like to meet- past or present, real or fictional:

Charles Darwin.

11. What items would you take on a desert island and why:

A really good inflatable raft. I'd love being on a desert island but there would come a time when I'd have to check how the office is going...

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## Educational Activities

### Education Multimedia Subcommittee

The CIS Education Multimedia Subcommittee intend to build up a reference centre of links to good quality short interactive multimedia demonstrations or short videos on CI. These can be suitable for a range of audiences, and can link to externally hosted resources. We invite you to submit recommendations for resources you have come across that would benefit the wider CIS community. please email suggestions to Annabel Latham (a.latham@mmu.ac.uk).



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## Members Activities

- **Webinar: Applying the Concept of Gamification in System Customer Relationship Management**  
Speaker: Prof. Juan Eligio Tiriñi Quispe  
Date & Time: Sep 8, 10:00 EDT
- **Webinar: Game AI and Noisy Optimisation**  
Speaker: Prof. Simon M. Lucas  
Date & Time: Sep 11, 17:00 BST
- **Webinar: Evolutionary Computation for Feature Selection and Feature Construction**  
Speaker: Dr. Bing Xue  
Date & Time: Sep 25, 14:00 NZDT



[Read more](#)

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## Call for Papers (Journal)

- [IEEE CIM Special Issue on Computational Intelligence Techniques in Bioinformatics and Bioengineering \(Nov 15\)](#)
- [IEEE CIM Special Issue on Computational Intelligence in Finance and Economics \(Dec 31\)](#)
- [IEEE TCDS Special Issue on Neuro-Robotics Systems: Sensing, Cognition, Learning and Control \(Nov 30\)](#)
- [IEEE TETCI Special Issue on Human-Machine Symbiosis \(Oct 2\)](#)
- [IEEE TETCI Special Issue on Large-scale Memristive Systems Computational Intelligence \(Oct 30\)](#)
- [IEEE TETCI Special Issue on Computational Intelligence in Data-Driven Optimization \(Jan 31, 2018\)](#)

- [Memetic Computing Thematic Issue on Brain Storm Optimization Algorithms \(Sep 15\)](#)
  - [Neurocomputing Special Issue on Learning in the Presence of Class Imbalance and Concept Drift \(Oct 23\)](#)
  - [IET Cyber-Physical Systems Special Issue on Cyber Physical Power Systems: Advanced Intelligent Technologies and Applications \(Feb 1, 2018\)](#)
- 

## Call for Papers (Conference)

- [Call for Special Sessions / Tutorials / Competitions / Workshops: IEEE World Congress on Computational Intelligence \(WCCI 2018\) \(Dec 15\)](#)
  - [International Conference on Agents and Artificial Intelligence \(ICAART 2018\) \(Sep 5\)](#)
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## Call for Participation

- [IEEE CIS 2017 Competition: "Telling a Story: How your Computational Intelligence Research benefits Society and Humanity" \(Oct 1\)](#)
  - [KI 2017 Competition: ZooOperation Challenge & Workshop, Dortmund, Germany \(Sep 15\)](#)
  - [Joint IEEE International Conference on Developmental Learning and Epigenetic Robotics \(ICDL-EpiRob 2017\), Lisbon, Portugal \(Sep 18-21\)](#)
  - [IEEE SMC Workshop on Brain-Machine Interface Systems \(SMC 2017\), Banff, Canada \(Oct 5-8\)](#)
  - [International Conference on Behavioral, Economic, and Socio-Cultural Computing \(BESC 2017\), Krakow, Poland \(Oct 16-18\)](#)
  - [IEEE International Conference on Data Science and Advanced Analytics \(DSAA 2017\), Tokyo, Japan \(Oct 19-21\)](#)
  - [International Conference on Simulated Evolution and Learning \(SEAL 2017\), Shenzhen, China \(Nov 10-13\)](#)
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## Career Opportunities

- [Research Associate in Machine Learning for Software Engineering, University of Leicester, UK \(Sep 25\)](#)
- [PhD Scholarship on Machine Learning for Software Engineering, University of Leicester, UK \(Open until Filled\)](#)
- [PhD Scholarship in EECS, South Dakota State University, USA \(Feb, 2018\)](#)

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