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CONTACT

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS

Signal Processing

Developments in biometric templates protection

Dr. Ton Kalker
Hewlett-Packard Laboratories

Monday 05 October 300 - 400pm
Room KAIS 2020, Fred Kaiser Building
2332 Main Mall, University of BC

An unfortunate side effect of the growth of the Internet and its associated services is an increasing need to securely store and manage a multitude of user identities and passwords. Very often the numbers that need to be managed are too large to be practical, and people resort to re-using passwords and/or using simple (and guessable) schemes for password generation. Biometrics is often proposed as a way out of this dilemma: biometric data are unique to a person, they are hard to replicate, and they don't need to be remembered. However, biometric data for authentication suffer from a number of potential pitfalls that need to be resolved before they can replace classical password schemes. One example would be the lack of renewability of a biometric template: once a biometric template has been compromised, there is no obvious way to renew authentication data. In this talk, we will give an overview of issues around biometric template detection, addressing both threats and potential solutions. In particular we will discuss some recent results on the rate of biometric authentication schemes as a function of biometric information leakage.

Speaker: Dr. Ton Kalker is a Distinguished Technologist at Hewlett-Packard Laboratories. His interests are in the fields of signal and audio-visual processing, media security, biometrics, information theory and cryptography. He has made significant contributions to media security, in particular digital watermarking, robust media identification and interoperability of Digital Rights Managements systems. His

Developments..

Signal Processing

Particle filtering methodology in signal processing

Prof. Petar Djuric
Stony Brook University

Distinguished Lecture

Friday 16 October 1100am - Noon
Room KAIS 2020, Fred Kaiser Building
2332 Main Mall, University of BC

Particle filtering is a Monte Carlo – based methodology for sequential signal processing. It is designed for estimation of hidden processes that are dynamic and that can exhibit most severe nonlinearities. Also, it can be applied with equal ease to problems that involve any type of probability distributions. Therefore, it is not surprising that particle filtering has gained immense popularity. In this talk, first, the basics of particle filtering will be provided with description of its essential steps. Then some important topics of the theory will be addressed including Rao-Blackwellization, smoothing, and estimation of constant parameters. Finally, a presentation of most recent advances in the theory will be given. The talk will contain signal processing examples which will aid in gaining valuable insights about the methodology.

Speaker: Petar M. Djuric (F) received his B.S. and M.S. degrees in Electrical Engineering from the University of Belgrade, in 1981 and 1986, respectively, and his Ph.D. degree in Electrical Engineering from the University of Rhode Island (1990). From 1981 to 1986, Prof. Djuric was a Research Associate with the Institute of Nuclear Sciences, Vinca, Belgrade. Since 1990, he has been with Stony Brook University, where he is Professor, Department of Electrical and Computer Engineering. His research interests are in the area of statistical signal processing, and his primary interests are in the theory of modeling,

Particle..

Signal Processing

Wireless sensors networks: a new life paradigm

Prof. Magdy Bayoumi
University of Louisiana

Friday 25 September 330 - 430pm
Room KAIS 2020, Fred Kaiser Building
2332 Main Mall, University of BC

Computers, communication, and sensing technologies are converging to change the way we live, interact, and conduct business. Wireless sensor networks reflect such convergence. These networks are based on collaborative efforts of a large number of sensor nodes. They should be low-cost, low-power, and multifunction. These nodes have the capabilities of sensing, data processing, and communicating. Sensor networks have a wide range of applications, from monitoring sensors in industrial facilities to control and management of energy applications to military and security fields. Because of the special features of these networks, new network technologies are needed for cost effective, low power, and reliable communication. These network protocols and architectures should take into consideration the special features of sensor networks such as: the large number of nodes, their failure rate, limited power, high density, etc. In this talk the impact of wireless sensor networks will be addressed, several of the design and communication issues will be discussed, and a case study of a current project of using such networks in drilling and management off-shore oil and natural gas in the gulf region will be given.

Speaker: Dr. Magdy A. Bayoumi is Director of The Center for Advanced Computer Studies (CACS), and Department Head of the Computer Science Department at the University of Louisiana at Lafayette (UL Lafayette). He is also the Z.L. Loflin Eminent Scholar Endowed Chair Professor in Computer Science. Dr. Bayoumi has been a faculty member in CACS since 1985. He received B.Sc. and M.Sc. degrees in Electrical Engineering from Cairo

Wireless..

Joint Communications

Mobile communications networks evolving through biologically-inspired technologies

Prof. Abbas Jamalipour
IEEE Fellow

Distinguished Lecture

Wednesday 14 October 700 - 900pm
BCIT SE6-233

Mobile communications networks have been evolved through multiple technologies over a period of several decades, to a stage that they become very complicated in the context of resource control and management. The heterogeneous next generation mobile network (NGMN) now includes a variety of network technologies and topologies incorporating with one another to provide a wide range of services; operate in a variety of channel conditions and environments; and within a single universal end user device. NGMN will need to be offered as an integrated system, and to promote interoperability among networks, offer global coverage and seamless mobility, enable the use of a universal handheld terminal, and enhance service quality compared to current wired networks. NGMN will be the infrastructure of the true mobile Internet.
Biologically-inspired technologies seem to be a promising candidate to initiate further evolvement of the NGMN in a way that it can be operated much more efficiently and resource controlled in the heterogeneous and cooperative environment. There are certain similarities between the biological systems and the NGMN that show some principles in one system could be adapted to the other one and make the NGMN network management more flexible and operational. In this talk, the NGMN will be explained and its functionalities mapped with the biological systems using the examples of the speaker's previous research works in the areas of NGMN architecture design, mobility and traffic management for cellular networks, NGMN security, mobile ad hoc and mesh networks, wireless sensor networks, and vehicular communications. The talk should be able to inspire the audience on new techniques accessible from the nature for a better design of architecture and network operation in future mobile communications networks than the conventional approaches.

Mobile..

Computer

Methodologies for optimizing Linux server performance

view slides

Sandra K. Johnson
IBM

Distinguished Lecture

Friday 16 October 300pm
Kaiser 2020, Fred Kaiser Building
2332 Main Mall, University of BC

The Linux operating system has gained significant popularity in the past several years as a platform for a diverse set of client and server computing machines. This talk describes the various methodologies used to improve the performance of the Linux kernel on high-end enterprise server machines. Described are methodologies for measuring, analyzing, and improving the performance and scalability of the Linux kernel, focusing on platform-independent issues. A diverse set of workloads are described, including web serving, database, and file serving. In addition, various components of the Linux kernel (e.g., disk IO subsystem) are examined. Several well-known benchmarks are used to quantify Linux performance for these workloads and system components. The results show significant improvements in the Linux kernel for enterprise servers with 2 to 16 computing units.

Speaker: Sandra K. Johnson is a Senior Technical Staff Member at IBM. Her previous assignments include working as the Chief Technology Officer, Global Small and Medium Business for IBM Systems and Technology Group, the Linux Performance Architect, and managing the Linux Performance, WebSphere Database Development, and Java Server Performance teams within IBM development and research organizations. She has conducted research in a number of computer related areas and was part of the design team that developed the prototype for the IBM Scalable Parallel Processor (SP2), the base machine for "Deep Blue", IBM's world famous chess machine.

Dr. Johnson is a member of the IBM Academy of Technology, which consists of the top 300 of IBM's over 250,000 technical professionals. She has received numerous technical and professional awards, and is a Master Inventor, with over 40 patents issued and

Methodologies..

Computer

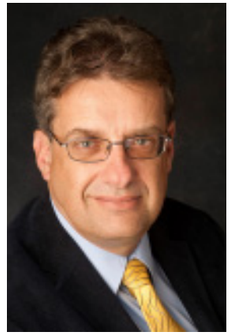
Estimating effort and cost in software projects - ISBSG a multi-organizational project data repository for project estimationand benchmarking

view slides

Pierre Bourque
Université du Québec

Distinguished Lecture

Thursday 29 October 400pm
Kaiser 2020/2030, 2332 Main Mall, UBC



The construction of an estimation model, whatever estimation method is used, usually requires a set of completed projects from which an estimation model is derived and which is used thereafter as the basis for the estimation of future projects. Until fairly recently, for those organizations without their own historical data sets for building estimation models themselves, and who could not afford the long lead time to do so, few alternatives were widely available. The International Software Benchmarking Standards Group (ISBSG) is dedicated to the development and management of a multi-organizational repository of software project data. This talk presents the resources available from ISBSG and how to leverage them in your own context for benchmarking and estimation purposes. An example of building project duration models and a case study of a "reality check" of estimates developed otherwise will illustrate how ISBSG can be used in your projects.

Speaker: Pierre Bourque is an associate professor and the director of a professional master's degree program in software engineering at École de technologie supérieure, Université du Québec, Canada. He is coeditor of the 2001 and 2004 versions of the Guide to the Software Engineering Body of Knowledge (SWEBOK) project, sponsored by the IEEE Computer Society and funded by numerous industrial partners. The SWEBOK Guide is recognized as an ISO Technical Report. He is also coeditor of the upcoming 2010 version of the SWEBOK Guide. He is currently a member of the Computer Society's Professional Activities Board and acts as liaison to the Educational Activities Board. He is a member of the Distinguished Visitor Program and was the recipient of an Outstanding Contribution Award from the Computer Society in 2001. He is currently running as a candidate to be

Estimating..

Message from the Chair

In 2011, IEEE Vancouver Section will celebrate its 100th anniversary.
It's a significant milestone that we intend to honour through a series of Centennial Projects that we hope will provide significant value to our community and set the tone for the Section's second century.
Our most significant Centennial Project will be the Section History Project. During the past hundred years, electrotechnology has transformed British Columbia. We want to capture the essence of that by identifying key events, places, and outcomes and by locating archival material that document and illustrate them.
We also want to devote equal effort to identifying British Columbians who have transformed electrotechnology through their scholarship, innovation and entrepreneurship so that we might properly recognize them.

The Section History Project will be a major undertaking that will require interaction with the IEEE History Center, the City of Vancouver Archives, the British Columbia Archives, and our major corporations and institutions with particular emphasis on those with long histories. One outcome of particular interest is identifying significant achievements that occurred at least twenty-five years ago in an area of technology represented in IEEE, which have had at least regional impact and which are suitable for recognition as IEEE Milestones in Electrical Engineering and Computing.
If you would like to contribute to the Section History Project, or subscribe to the project mailing list, I would very much like to hear from you. Please contact Dave Michelson dmichelson@ieee.org

APEGBC Conference

Electrical seminars†

Thursday 15 October
Victoria Conference Centre
Sidney Room - Empress Hotel

900 – 1015am	Challenges/opportunities of protecting utilities Dr. Mukesh Nagpal PEng
1045 – noon	Current Interruption in atmospheric air Dr. David Peelo PEng
145 – 300pm	Planning/operating a large power system Paul Choudhury PEng
330 – 445pm	Can.electrical safety system: codes & standards Ark Tsisserev PEng

Cost of 1 day registration including breakfast, lunch and social: $320. More detailed info at: www.apeg.bc.ca/ac2009/prodev/electrical.html (†1.25 pd hours each)

Professional Engineers and Geoscientists of BC

Institute for Computing, Information & Cognitive Systems
Distinguished Lecture Series

Realizing programmable matter

Seth Copen Goldstein,
Carnegie Mellon University
Thursday 22 October 330-500pm
Room 110 Hugh Dempster Pavilion
6245 Agronomy Road UBC Vancouver, BC

Applications of electromagnetic transient programs (PSCAD®/EMTDC™) for power system studies

Wednesday 30 Sept 900a - 430p
Hilton Vancouver Metrotown
6083 McKay Avenue, Burnaby BC
Presented by
Manitoba HVDC Research Centre
To register for this event, please email info@pscad.com, or call 1-204-989-1240
There is no cost to attend

The Manitoba HVDC Research Centre, a subsidiary of Manitoba Hydro, performs innovative research and development into advanced power system technologies, developing and marketing an array of products and services worldwide including the renowned power system simulation software PSCAD®. PSCAD®, also known as PSCAD®/EMTDC™, is a powerful time domain electromagnetic transient simulation study tool which has limitless applications. PSCAD® can be used for transmission system design and performance, power quality studies, power electronic design, electric machine performance, distributed generation studies, control system and design optimization, protection system validation, among many others.
Download a free full-featured evaluation copy of PSCAD at:
https://pscad.com/products/pscad/free_downloads

Who Should Attend

New and existing users of PSCAD®, Electrical Engineers & Engineers-in-training, power system analysts & technicians, and consultants. Previous PSCAD® experience is not necessary.
Participants will be provided a PSCAD® license for use during seminar, if they choose. Various application areas will be presented and examples provided for participants' review and evaluation.

Seminar Outline

1. Introduction
· Intoduction to Electromagnetic transients in power networks
· Introduction to Electromagnetic transient simulations programs–(PSCAD®/EMTDC™ in particular)
2. AC System Transient Studies
· Transient/temporary over voltage studies (TOV) - Line energizing, capacitor bank back to back switching, inrush and out-rush reactors - Arrestor rating and the selection of arrestors · Transient recovery voltage across breakers (TRV)
3. Fast front studies – Insulation coordination
4. Transformers · Saturation and inrush current issues · Ferro resonance

Applications..

..Mobile

Speaker: Abbas Jamalipour holds a PhD from Nagoya University, Japan. He is the author of the first book on wireless IP and three other books, and has co-authored nine books and over 190 technical papers, all in the field of mobile communications networks.

He is a Fellow of IEEE (for contributions to next generation networks for traffic control), a Fellow of Institute of Engineers Australia; an IEEE Distinguished Lecturer and a Technical Editor of several scholarly journals including IEEE Communications, Wiley International Journal of Communication Systems, Journal of Communication Network, etc.

He was the Editor-in-Chief of the IEEE Wireless Communications between Dec 2005 and Feb 2009. His areas of research are wireless data communication networks, wireless IP networks, next generation mobile networks, traffic control, network security and management, and satellite systems.

He was one of the first researchers to disseminate the fundamental concepts of the next generation mobile networks and broadband convergence networks as well as the integration of wireless LAN and cellular networks; some of which are being gradually deployed by industry and included in the ITU-T standards.

Dr Jamalipour has authored several invited papers and been a keynote speaker in many prestigious conferences. He served as the Chair of the Satellite and Space Communications Technical Committee (2004-06); and currently is the Vice Chair of Communications Switching and Routing TC; and Chair of Chapters Coordinating Committee, Asia-Pacific Board, all from the IEEE Communications Society.

He has received several prestigious awards, such as the 2006 IEEE Distinguished Contribution to Satellite Communications Award, the 2006 IEEE Communications Society Best Tutorial Paper Award, and the 2005 Telstra Award for Excellence in Teaching.

Info: Joint Communications Chair Alon Newton, anewton@ieee.org

..Estimating

member of the Board of the Governors of the IEEE Computer Society.

Bourque received a PhD from the University of Ulster (Northern Ireland) on the topic of the maturation of the software engineering discipline and profession. Prior to his academic appointment, he worked in software engineering, data modeling, and database design at the National Bank of Canada from 1987 to 1995.

Info: Computer Chair Sathish Gopalakrishnan sathish@ece.ubc.ca

..Wireless

University, Egypt; M.Sc. degree in Computer Engineering from Washington University, St. Louis; and Ph.D. degree in Electrical Engineering from the University of Windsor, Canada. Dr. Bayoumi is the recipient of the 2009 IEEE Circuits and Systems Meritorius Service Award. He is also the recipient of the IEEE Circuits and Systems Society 2003 Education Award, and he is an IEEE Fellow.

Dr. Bayoumi has graduated more than 35 Ph.D. and about 175 Master's students. He has published over 300 papers in related journals and conferences. He edited, co-edited and coauthored 5 books in his research interests. He has been Guest Editor (or Co-Guest Editor) of eight Special Issues in VLSI Signal Processing, Learning on Silicon, Multimedia Architecture, Digital and Computational Video, and Perception-on-a-Chip. The latest Special Issue has been on "System-on-a-Chip," IEEE Proceedings, 2006. He has given numerous invited lectures and talks nationally and internationally, and has consulted in industry. Dr. Bayoumi has served in many editorial, administrative, and leadership capacities in IEEE Circuits and Systems (CAS) Society. Currently, he is the Vice President for Conferences. He was Vice President for Technical Activities, and a member of the Board of Governors of CAS Society. He has been involved in many conferences, serving in different capacities.
Info: Signal Processing Chair Z. Jane Wang zjanew@ece.ubc.ca

..Developments

solution for standardization of video watermarking for DVD copy protection was accepted as the core technology for the proposed DVD copy protection standard and earned him the title of Fellow of the IEEE. He laid the foundation of the Content Identification business unit of Philips Electronics, which was successful in commercializing watermarking and other identification technologies.

At Philips, he co-authored 30 patents and 39 patent applications.

Since joining Hewlett-Packard in 2004, he has focused on the problem of non-interoperability of DRM systems. He became one of the three lead architects of the Coral consortium, publishing a standard framework for DRM interoperability in the summer of 2007. He also participates actively in the academic community, through students, publications, keynotes, lectures, membership in program committees and serving as conference chair.

He is a co-founder of the IEEE Transactions on Information Forensics, and a former chair of the associated Technical Committee of Information Forensics and Security.
He served for 6 years as visiting faculty at the University of Eindhoven, and is currently a visiting professor at the Harbin Institute of technology.

Info: Signal Processing Chair Z. Jane Wang zjanew@ece.ubc.ca

..Methodologies

pending. She has authored and co-authored over 80 publications, is Editor-in-Chief of the book Performance Tuning for Linux Servers, and is author of Inspirational Nuggets and GREGORY: The Life of a Lupus Warrior.

Dr. Johnson earned B.S. (summa cum laude), M.S. and Ph.D. degrees, all in electrical engineering, from Southern University, Stanford University, and Rice University, respectively. She is a member of the Institute of Electrical and Electronics Engineers (IEEE) and the Association for Computing Machinery (ACM). She is also an IEEE Fellow and an ACM Distinguished Engineer.
Info: Computer Chair Sathish Gopalakrishnan sathish@ece.ubc.ca

..Particle

detection, estimation, and time series analysis and its application to a wide variety of disciplines including wireless communications and biomedicine.

Prof. Djuric has served on numerous technical committees for the IEEE and has been invited to lecture at universities in the United States and overseas. His SPS activities include: Vice President-Finance (2006-09); Area Editor of Special Issues, IEEE Signal Processing Magazine (2002-05); Associate Editor, IEEE Transactions on Signal Processing (1994-96 and 2003-05); Chair, SPS Signal Processing Theory and Methods Technical Committee (2005-06); and Treasurer, SPS Conference Board (2001-03). He is an Editorial Board Member, IEEE Journal on Special Topics in Signal Processing, Elsevier Digital Signal Processing, Elsevier Signal Processing, and the EURASIP Journal on Wireless Communications and Networking. Prof. Djuric is an IEEE Fellow, as well as a Member of the American Statistical Association and the International Society for Bayesian Analysis.
Info: Signal Processing Chair Z. Jane Wang zjanew@ece.ubc.ca

CSDP Software Engineering Certification
Special Offer!!

The IEEE Computer Society has recently "refreshed" its Certified Software Development Professional (CSDP) certification. This has been done to keep the CSDP in line with changes to the Software Engineering Body of Knowledge (SWEBOK) and recent developments in software engineering.

This means that in the next exam sitting, the new elements of the CSDP exam will undergo a beta trial. The beta exam is official, in the sense that applicants who write it will obtain their CSDP certification if all requirements are met.

To ensure that there are a large number of examinees *for this sitting*, the Computer Society is offering a special CSDP certification package at a very low price.

To prepare for the beta exam, the IEEE Computer Society is offering $295 special bundle that consists of the following:
- Current CSDP e-learning course ($395 member value)
- CSDP beta examination ($450 member value)
- SWEBOK Guide ($55 member value)
- Supplemental materials to prepare for the new knowledge areas in the CSDP examination

This offer is limited to 200 participants worldwide and will expire on 16 October 2009. Actual exam sitting period will be 18 November – 10 December 2009, so the sooner you register, the sooner you can obtain the study materials and begin your preparation!

ACT NOW
VISIT THE FOLLOWING WEB SITE FOR MORE INFORMATION
http://www2.computer.org/portal/web/certification/csdpbeta

IEEE Public Visibility Committee Finalizes New Positioning Statement

The IEEE Public Visibility Committee has finalized a positioning statement designed to provide a brief snapshot of IEEE and its global mission. The positioning statement is part of the work of the Public Visibility Initiative which seeks to increase IEEE's visibility and create a global voice for the engineering profession.

The statement is one of several tools being developed to ensure that IEEE positioning is portrayed consistently across the association. It should be integrated into marketing, public relations, and other promotional materials across the IEEE organization and should be kept in mind when developing any content that may describe IEEE (e.g., conference materials, speeches, bylined articles, content for IEEE Web sites, etc.).

Positioning Statement:
IEEE is the world's largest professional association advancing innovation and technological excellence for the benefit of humanity. IEEE and its members inspire a global community to innovate for a better tomorrow through its highly cited publications, conferences, technology standards, and professional and educational activities. IEEE is the trusted "voice" for engineering, computing, and technology information around the globe.

..Applications

5. Faults and detailed analysis of protection systems
· DC offset in fault current, the rate of decay and its influence on CT saturation and relay mal-operation
· Automated generation of a large number of fault waveforms in COMTRADE format for real time relay testing
· Detailed CT saturation models and their application
6. Induction Machines
· Large induction motors starting issues including flicker and voltage dip problems
7. HVDC System Studies – AC/DC interaction, control methods, fault recovery and commutation failure
8. FACTS Devices – Applications in AC networks
· SVC, STATCOM, others
9. Wind Power – technology, role of simulation studies, examples
10. Power Quality – voltage dips, swells, harmonics and fluctuations · Arc furnace loads
11. Synchronous machines / generators
· Controls including governors, exciters, PSS, etc.· Sub-synchronous resonance issues and modeling

Lunch and refreshments will be served
For further information, please contact
IEEE PES Chapter Chair
Glen Tang at glen.tang@ieee.org.

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Did you know that the video game, Pong, was invented by a guy who graduated at the bottom of his engineering class? Nolan Bushnell spent more time running the games at a local amusement park than he did on his studies at the University of Utah. His dreams of working for Disney's amusement empire were dashed when the company wouldn't hire him. Taking a boring job, Nolan daydreamed about electronic versions of popular games. He invented Pong, the first video game, and went on to found Atari Co.

Is Poutine greater than Java?

In 2007, CBC aired a miniseries entitled The Greatest Canadian Invention. The series proposed 50 candidates and asked viewers to rank their choices. Dave Kemp, Member, IEEE Canada History Committee, (d.kemp@ieee.org) sent us the results.
Items fitting IEEE fields of interest are in italics. For more details about the CBC broadcast;
visit: http://www.cbc.ca/inventions/inventions.html or http://www.absoluteastronomy.com/topics/The_Greatest_Canadian_Invention
Your local library may have the broadcast on DVD. Some portions of the broadcast can be found on YouTube by searching on the series name. Any comment via Letters to the Editor (n.keenan@ieee.org) will appear next issue.

Rank	Invention	Year	Inventor	Location
01	Insulin	1921	Frederick Banting, Charles Best	University of Toronto
02	*Telephone*	*1876*	*Alexander Graham Bell*	
03	*Light Bulb*	*1874*	*Henry Woodward, Mathew Eans (patent sold to Edison)*	
04	Five Pin Bowling	1908	Thomas F. Ryan	
05	Wonderbra	1961	Louise Poirier	
06	*Pacemaker*	*1950*	*John Hopps, Wilfred Bigelow, John Callaghan*	
07	Robertson Screw	1908	Peter Robertson	
08	Zipper	1913	Gideon Sundback	
09	*Electric Wheelchair*	*1952*	*George Klein*	*NRC*
10	Poutine	1957	Fernand Lachance	Warwick, Quebec
11	*Cobalt-60 Cancer Bomb*	*1951*	*Harold James*	
12	*Java Programming Language*	*1984*	*James Arthur Gosling*	*Calgary, AB*
13	Bloody Caesar	1969	Walter Chell	Calgary, AB
14	*Canadarm*	*1975*	*Spar Aerospace/NRC*	
15	*Standard Time*	*1878*	*Sir Sandford Fleming*	
16	*Electron Microscope*	*1939*	*James Hillier, Albert Prebus*	*University of Toronto*
17	Ski-Doo	1922	Armand Bombardier	Quebec
18	*Blackberry*	*1999*	*Mike Lazaridis*	
19	*Radio Voice Transmission*	*1900*	*Reginald Fessenden (lived in USA)*	
20	Birchbark Canoe		First Peoples	
21	Basketball	1892	James Naismith Canadian	Springfield, Mass.
22	Retractable Beer Carton Handle	1957	Steve Pasjack	
23	UV Degradable Plastics	1971	James Guillet	University of Toronto
24	*Instant Replay*	*1955*	*George Retzlass (CBC)*	
25	Goalie Mask	1959	Jacques Plante	
26	Marquis Wheat	1908	Sir Charles Saunders	
27	Pablum	1930	Mssrs: Brown, Drake,Tisdall	Toronto Hospital for Sick Children
28	Lacrosse		First Peoples	
29	*Electric Oven*	*1892*	*Thomas Ahearn*	*Ottawa*
30	Steam Fog Horn	1853	Robert Facilis	St. John, NB
31	*Walkie Talkie*	*1942*	*Donald L. Hings*	
32	*Alkaline Battery*	*1959*	*Lewis Urry*	*Cleveland via Pontypool Ontario*
33	Paint roller	1940	Norman Breakey	
34	*Electronic Music Synthesizer*	*1945*	*Hugh LeCaine*	*Ottawa, ON*
35	Wee Vac G (emerg. evac stretcher)	1990	Wendy Murphy	
36	Green Garbage Bag	1950	Harry Wasylyk, Larry Hansen, Frank Plomp	
37	Snowblower	1925	Arthur Sicard	Quebec
38	Self Propelled Combine Harvester	1937	Thomas Carroll, Massey Harrison	
39	Instant Mashed potatoes	1962	Edward Asselbergs	
40	*Explosives Vapour Detector*	*1985*	*Lorne Elias*	
41	Marine Screw Propeller	1833	John Patch	Yarmouth, St. John
42	Plexiglass	1931	William Chalmers	McGill University
43	Key Frame Animation	1969	Nestor Burtnyk, Marceli Wein	
44	CPR Mannequin 'Actar 911'	1989	Dianne Croteau, Richard Brault	
45	Anti Gravity Suit	1941	Wilbur Franks	University of Toronto
46	Ardox Spiral Nail	1954	Allan Dove	
47	Automatic Lubricating Cup	1872	Elijah McCoy	Ontario
48	*Crash Position Indicator*	*1957*	*Harry Stevenson*	
49	Caulking Gun	1894	Theodore Witte	Chilliwack, BC
50	Separable Baggage Check	1882	John Mitchell Lyons	Moncton, NB