Curriculum Vitae
of
John P. Peach

3104 McKinley Way · Costa Mesa CA · 92617 · USA
john@jppeach.com · +1(802)735-2059

Post-Secondary Education

2021	Masters of Science (Data Science) (Honours) Johns Hopkins University, Baltimore Maryland USA
2017	Graduate Certificate in Data Mining and Application (High Honors) Stanford University, Stanford California USA
2015	Certificate in Database and Data Analytics (Honors) University of California Extension, Santa Cruz, Santa Clara California, USA
2008	Doctor of Philosophy (Mechanical Engineering) (*all but dissertation*) University of Vermont, Burlington Vermont, USA
2008	Graduate Certificate in Mechanical Engineering (Computational and Theoretical Fluid Dynamics) Concordia University, Montreal Quebec, Canada
2007	Masters of Science (Mechanical Engineering) University of Vermont, Burlington Vermont, USA
1997	Masters of Science (Kinesiology) University of Waterloo, Waterloo Ontario, Canada
1995	Engineering Diploma (High Honours) Nova Scotia Agricultural College, Bible Hill Nova Scotia, Canada
1994	Honours Bachelors of Science (Kinesiology) Dalhousie University, Halifax Nova Scotia, Canada

Patents

- ***Peach, John P***., and Robert Hansen. Site Security Monitor. Patent US-20160099962-A1, US-9742792-B2, US-20180131713-A1
- Lee, Justin, Eunice Joung, Michael Brand, Mark Alan Berman, Nicholas Barnes, Yves Behar, Klaus Bescherer-Nachtmann, Aaron Visser, Noah Murphy-Reinhertz, Erik Kreider, Mirko Ihrig, Nikita Nangia, Eric Shyr, Graham Humphreys, Ryna Karnik, and ***John P. Peach*** Intelligent Vessel. Patent PCT/US15/31136
- Mark Conrad Kockerbeck, ***John Peach***, Kevin Boehm, Tina Orooji, Ian Christopher Suttle, Robert Pulciani Skill enablement . Patent US-10950231-B1

University Courses Taught

Courses were taught at Concordia University, Montreal QC, Canada. All except the COMP classes were accredited classes by the Canadian Engineering Accreditation Board. These classes were reviewed, as part of the normal renewal process, and were re-accredited during my tenure.

BCEE232 - Programming for Building and Civil Engineers I

SOEN287 – Web Applications

COMP352 - Data Structures and Algorithms

COMP248 – Object Oriented Programming I

COMP249 – Object Oriented Programming II

ENGR361 – Fluid Mechanics I

MECH211 – Mechanical Engineering Drawing

MECH215 – Programming for Mechanical and Industrial Engineers

MECH221 – Materials Science

MECH311 - Manufacturing Processes

MECH313 – Machine Design and Drawing

Private Tutoring of University Courses

On a full-time basis, provided private tutoring to individuals and groups. The courses were generally upper-level and graduate courses from the School of Engineering. Activities, included developing study material, course study guides, practice examinations and teaching of material. In addition, for some subjects (marked with *) I developed and taught "Crash Courses." These were twenty-five hour courses that prepared the student for final examinations.

BCEE231 – Computer Applications for Building and Civil Engineers
BCEE232 – Programming for Building and Civil Engineers I
COEN231 – Introduction to Discrete Mathematics
COMP352 – Data Structures and Algorithms
ENGR213 – Applied Ordinary Differential Equations
ENGR242 – Statics
ENGR243 – Dynamics*
ENGR244 – Mechanics of Materials*
ENGR301 – Engineering Management Principles and Economics*
ENGR311 – Transfer Calculus Partial Differential Equations
ENGR361 – Fluid Mechanics I
ENGR371 – Probability and Statistics For Engineers
ENGR391 – Numerical Methods In Engineering
MECH211 – Mechanical Engineering Drawing
MECH215 – Programming for Mechanical and Industrial Engineering
MECH221 – Materials Science
MECH311 – Manufacturing Processes
MECH313 – Machine Design and Drawing
MECH343 – Theory of Machines I
MECH6121 – Aerodynamics
MATH203 – Differential and Integral Calculus I
MATH205 – Differential and Integral Calculus I
MATH370 – Ordinary Differential Equations

Academic Committee Appointments

Curriculum Committee, Department of Mechanical and Industrial Engineering, Concordia University
Role: Assessed core engineering classes for content; evaluated proposed changes to classes; oversaw Canadian Engineering Accreditation Board reviews.

Department Council, Department of Mechanical and Industrial Engineering, Concordia University
Role: This council was the management board for the department. It oversaw and had authority over all academic

and administrative operations and committees. It also had some management responsibilities related to shared research resources.

Refereed Journal Papers

Carey YL Huh, Karim Abdelaal, Kirstie J Salinas, Diyue Gu, Jack Zeitoun, Dario X Figueroa Velez, **John P Peach**, Charless C Fowlkes, Sunil P Gandhi, Journal of Neuroscience, "Long-term monocular deprivation during juvenile critical period disrupts binocular integration in mouse visual thalamus" 40(3)585-604, 2020

Fazel-Zarandi, M., Biswas, S., Summers, R., Elmalt, A., McCraw, A., McPhilips, M., **Peach, J.P.**, 33rd Conference on Neural Information Processing Systems, Vancouver, Canada, "Towards Personalized Dialog Policies for Conversational Skill Discovery" 1-10, 2019 https://arxiv.org/abs/1911.06747

Huh, C.Y.L., Bennett, C., Vega, R.M., **Peach, J.P**., & Hestrin, S., Current Biology, "Feature-specific organization of feedback pathways in mouse visual cortex", 28(1)114-120, 2018

Carey Y. L. Huh, Bénédicte Amilhon, Katie A. Ferguson, Fre´déric Manseau, Susana G. Torres-Platas, ***John P. Peach***, Stephanie Scodras, Naguib Mechawar, Frances K. Skinner, Sylvain Williams, Journal of Neuroscience, "Excitatory Inputs Determine Phase-Locking Strength and Spike-Timing of CA1 Stratum Oriens/Alveus Parvalbumin and Somatostatin Interneurons during Intrinsically Generated Hippocampal Theta Rhythm", 36(25);6605-6622,2016

Miller, M.S., ***Peach, J***., & T.S. Keller, Journal of Electromyography and Kinesiology, "Electromyographic analysis of a human powered stepper cycle during seated and standing riding", 11(6):413-23, 2001.

Ye, S., Wu J., & ***Peach J.***, Ultrasound in Med. & Biol, "Ultrasound Shear Wave Imaging for Bone", 26:833-837, 2000.

McGill, S.M., Yingling, V., & ***Peach, J.***, Clinical Biomechanics, "Three-dimensional kinematics and trunk muscle myoelectric activity in the elderly spine - A database compared to young people", 14(6):389-395, 1999.

Peach, J., & S.M. McGill, "Kinematics and Trunk Muscle Myoelectric Activity in the Chronic Low Back Pain Patient", Under Revision.

Peach, J., Sutarno, C., & S. M. McGill, Archives of Physical Medicine & Rehabilitation, "Three-dimensional Kinematics of the Asymptomatic Young Lumbar Spine and Myoelectic Activity of Trunk Muscles - A Database", 79(6):663-669, 1998.

Peach, J., Gunning, J., & S.M. McGill, Journal of Electromyography and Kinesiology, "Reliability of Spectral EMG Parameters of Healthy Back Extensors During Submaximum Isometric Fatiguing Contractions and Recovery", 8(6):403-410, 1998.

Boakes, J., ***Peach, J.***, & S. McGill, Journal of Electromyography and Kinesiology, "Does Methocarbamol Affect Fatigue Markers in the Low Back Electromyogram?", 8(6):423-427, 1998.

Peach, J., & S. M. McGill, Spine, "Classification of low back pain with the use of spectral EMG parameters", 23(10):1117-1123, 1998.

McGill, S., Cholewicki, J., & ***Peach, J.***, Clinical Biomechanics, "Methodological Considerations for using Inductive Sensors (3-SPACE ISOTRAK) to Monitor 3-D Orthopaedic Joint Motion", 12(3):190-194, 1997.

Refereed Conference Abstracts

Peach, J.P., "Haemorheological Characterization of a Perfluorocarbon-based Oxygen Carrier (Oxygent) in Microcirculatory Scale Flow," Proceedings of the XIth International Symposium on Blood Substitutes, Beijing China, October 2007.

Shrinivasan, S., ***Peach, J.P.***, Hitt, D.L. and Eggleton,C.D., "Rheology of Mixtures of Artificial Blood and Erythrocyte Suspensions," Proceedings of the 2001 ASME Bioengineering Conference, American Society of Mechanical Engineers, New York, BED-50:481-482, 2001.

Peach, J., Dawson, B.P., & D.L. Hitt, Bulletin of the American Physical Society, "Microscopic Separation Surface Between Converging Flows of Immiscible Fluids", Washington: DC, 53rd Annual Meeting of the American Physical Society's Division of Fluid Dynamics, Washington, DC, 45(9):136, November 2000.

Wu, J., Ye, S., & ***J. Peach***, J. Acoust. Soc. Am., "Characterization of bone using longitudinal and shear wave imaging techniques", 139th Meeting: Acoustical Society of America, 107(5):2778, May 2000.

Peach, J., & D.L. Hitt, Proceedings of the 2000 ASME Winter Annual Conference - Bioengineering Division, "Imaging and Measurement of the Separation Surface Between Converging Fluids of Differing Viscosity at A Microscopic Branch", Orlando: Florida, BED-48:277-278, November 2000.

Hitt, D.L. & ***J. Peach***, Micro-Elector-Mechanical Systems (MEMS) - 2000, "Three-Dimensional Imaging of Microfluidic Mixing Surfaces Using Dual-Channel Confocal Microscopy", Lee, A.P., Malshe, A.P., Forster, F.K., Tan, Q., & R.S. Keynton, eds., American Society of Mechanical Engineers, New York, p. 497-504, November 2000.

Miller, M., Martin, J., ***Peach, J.***, Lindsay, S. & T.S. Keller, Proceedings of the IEEE 25th Northeast Bioengineering Conference, "Electromyographic Analysis of a Human Powered Stepper Bike", University of Hartford: Connecticut, p. 120-121, April 1999.

Peach, J., Gunning, J., & S.M. McGill, Proceedings of NACOB '98, "Kinematics and Trunk Muscle Myoelectric Activity in the Chronic Low Back Pain Patient", University of Waterloo: Ontario, p. 385, August 1998.

Peach, J., Gunning, J., & S.M. McGill, Journal of Biomechanics, "Kinematics and Trunk Muscle Myoelectric Activity in the Chronic Low Back Pain Patient", 31(S1):118, 1998.

Peach, J., Gunning, J., & S.M. McGill, Journal of Biomechanics, "Reliability of Spectral EMG Parameters During Isometric Contractions of the Spine Extensors", 31(S1):176, 1998.

Peach, J., Pelham, T., Carter, A., Holt, L., & D. Burke, Proceedings XIII International Symposium on Biomechanics in Sports, "A Method of Motion Analysis for Self-Propelled Aquatic Crafts", Ed. T. Baurer, Lakehead University: Ontario, p.75-78, 1995.

Peach, J., & L. Holt, Proceedings XIII International Symposium on Biomechanics in Sports, "An Analysis of Selected Kinematic Variables in Scull Rowing Using Macon and Hatchet Oars", Ed. T. Baurer, Lakehead University: Ontario, p.79-82, 1995.

Carter, A., Pelham, T., ***Peach, J.***, & L. Holt, Biomechanics in Sport XII, "The Effect of Paddle Variations on the Body Kinematics and Boat Dynamics of an Olympic Canoeist", Ed. Anikeo Baras et al., Hungarian University of Physical Education: Budapest, p.139, 1994.

Carter, A., ***Peach, J.***, Pelham, T., & L. Holt, Biomechanics in Sport XII, "Measures of C1 Craft Acceleration Using Various Paddle Designs", Ed. Anikeo Baras et al., Hungarian University of Physical Education: Budapest, p.190-193, 1994.

Pelham, T., Holt, L., Burke, D., Carter, A. & ***J. Peach***, Biomechanics in Sport XI, "The Effects of Oar Design on Scull Boat Dynamics: A Pilot Study" Ed. Hamill, J., Derrick, T.R. and E.H. Elliott, University of Massachusetts: Amherst, p.201-204, 1993.

Refereed Podium Presentations

Peach, J.P., "Haemorheological Characterization of a Perfluorocarbon-based Oxygen Carrier (Oxygent) in Microcirculatory Scale Flow," Proceedings of the XIth International Symposium on Blood Substitutes, Beijing China, October 2007.

Peach, J., Dawson, B.P., & D.L. Hitt, Microscopic Separation Surface Between Converging Flows of Immiscible Fluids, 53rd Annual Meeting of the American Physical Society's Division of Fluid Dynamics, Washington, DC, November 2000

Peach, J., & D.L. Hitt, Imaging and Measurement of the Separation Surface Between Converging Fluids of Differing Viscosity at A Microscopic Branch, 2000 ASME Winter Annual Conference - Bioengineering Division, Orlando, FL, November 2000

Hitt, D.L. & ***J. Peach***, Three-Dimensional Imaging of Microfluidic Mixing Surfaces Using Dual-Channel Confocal Microscopy, 2000 ASME Winter Annual Conference - MEMS Symposium, Orlando, FL, November 2000

Hitt, D.L., ***Peach, J.*** & C. Dunlap, Influence of the Viscosity Ratio on the Separation Surface Between Converging Flows at Microscopic Bifurcation, Annual Meeting of the American Physical Society's Division of Fluid Dynamics, New Orleans, LA., November 1999

Miller, M., Martin, J., ***Peach, J.***, Lindsay, S. & T.S. Keller, "Electromyographic Analysis of a Human Powered Stepper Bike", Northeast Bioengineering Conference IEEE 25th Annual Northeast Bioengineering Conference, University of Hartford, Connecticut, April 1999.

Peach, J., Gunning, J., & S.M. McGill, Kinematics and Trunk Muscle Myoelectric Activity in the Chronic Low Back Pain Patient, The 23rd Annual Conference of the American Society of Biomechanics and the Tenth Biennial Conference of the Canadian Society for Biomechanics, University of Waterloo: Ontario, August 1998.

Peach, J., Gunning, J., & S.M. McGill, Kinematics and Trunk Muscle Myoelectric Activity in the Chronic Low Back Pain Patient, 11th European Society of Biomechanics, Toulouse, France, July 1998.

Peach, J., Gunning, J., & S.M. McGill, Reliability of Spectral EMG Parameters During Isometric Contractions of the Spine Extensors, 11th European Society of Biomechanics, Toulouse, France, July 1998.

Peach, J., Pelham, T., Carter, A., Holt, L., & D. Burke, A Method of Motion Analysis for Self-Propelled Aquatic Crafts, 13th Symposium of the International Society of Biomechanics in Sport, Lakehead University: Ontario, July 1995

Peach, J., & L. Holt, An Analysis of Selected Kinematic Variables in Scull Rowing Using Macon and Hatchet Oars, 13th Symposium of the International Society of Biomechanics in Sport, Lakehead University: Ontario, July 1995

Carter, A., ***Peach, J.***, Pelham, T., & L. Holt, Measures of C1 Acceleration Using Various Paddle Designs, 11th Symposium of the International Society of Biomechanics in Sport, Budapest: Hungary, July 1994.

Pelham, T., Holt, L., Burke, D., Carter, A. & ***J. Peach***, The Effect of Oar Design on Scull Boat Dynamics: A Pilot Study, 12th Symposium of the International Society of Biomechanics in Sport, Amherst Massachusetts: U.S.A., June 1993.

Refereed Conference Poster Presentations

Huh, C.Y.L., Bennett, C., Vega, R.M., **Peach, J.**, & S. Hestrin, Feature-specific organization of cortico-cortical feedback connections in mouse visual cortex, Society for Neuroscience, San Diego, CA, November 2016.

Peach, J., D.L. Hitt, S. Sushil & C.D. Eggleton, Viscometric Measurements of Perfluorocarbon-based Artificial Blood Substitutes, Vermont EPSCoR Annual Meeting - "VT EPSCoR, Three Years of Progresss," Burlington, VT, April 2002

Sushil, S., ***Peach, J.***, Hitt, D.L., & C.D. Eggleton, 2001 ASME Summer Bioengineering Conference, "Rheology of Mixtures of Artificial Blood and Erythrocyte Suspensions", Snowbird, Ut, July 2001.

Non-Refereed Conference Abstracts

Prabhu, R.D., Hitt, D.L., & **J. Peach**, Fluent Users' Group Meeting 2001, "Interfacial Analysis of Micro-Scale Flow Mixing", Manchester, NH, June 2001

Miller, M., Martin, J., ***Peach, J.***, Lindsay, S. & T.S. Keller, Graduate Research Day, "Electromyographic Analysis of a Human Powered Stepper Bike", University of Vermont: Vermont, March 1999.

Invited Academic Lectures

"Life as an Industry Data Scientists", University of Irvine, February 2017

"Building a Security Metric to Asses Web Application Trustworthiness using Survival Analysis", University of Santa Clara, March 2016

"Data Mining Breach and How to Create an Adaptive Security Index", University of Santa Clara, August 2015

"Data Science Project Life-cycle", University of Santa Clara, November 2015

"Artificial Blood and the Challenge of Mimicking Blood's Viscosity". Department of Chemistry, Xiamen University, October 2007.

"Using Functional Assessment to Objectively Evaluate Low Back Pain", Department of Physical Therapy, University of Vermont, February 1999.

"Low Back Pain: Muscle Imbalance or Muscle Fatique?", College of Medicine, Dalhousie University, 1998.

"EMG Median Power Frequency During Fatique Tasks in Chronic Low Back Pain Patients", Neuromuscular Research Center, Boston University, 1997.

Academic Journal Peer Reviewer

Journal of Electromyography and Kinesiology

Textbook Reviewed

Bridges, J., & R. Jensen, Kinesiology Lab Manual, Stipes Publishers, 1999.

Consultant Reports

1999	An Index Model for non-Fungible Important American Paintings James Maroney, Inc.
1999	A Novel Approach for Hedging the Sale of non-Fungible Items James Maroney, Inc.
1998	Repeated Sampling of Truck Speeds Along IS91 in the Northbound Lane Near Mile Marker 148 Dinse, Knapp & McAndrew, PC
1998	A Report on the Distribution of Truck Speeds Along IS91 in the Northbound Lane Near Mile Marker 148 Dinse, Knapp & McAndrew, PC

1997	Comparison of Spine Position on Various Mattress Designs Natural Bed Systems
1996	Assessment of the Pitch and Catch Chest Control Pack: Recommendations for Design C.P. Rail System
1995 to 1997	Evaluation of Low Back Function 26 reports to various clients
1994	Design Guidelines for Remodelling Police Dispatching Centre City of Halifax
1994	Ergonomic Assessment of Police Dispatching Centre City of Halifax

Industry Publications

Statistical Learning Model for Predicting Liquid Level using Capacitative Senors in a Thermal Gradient, Mark One Lifestyle, 2015

Minimizing the Computation Cost of the Pryme Hydration Equations: Strategies and Algorithms, Mark One Lifestyle, 2015

Evaluating the Total Cost of Ownership for Protecting Web Applications – White paper, WhiteHat Security, 2015

Know your Risk to Make Strategic Decisions on Application Security, WhiteHat Security, 2015

Benchmarking Application Security with Sentinel Dynamic, WhiteHat Security, 2015

WhiteHat Security Index – Solution Brief, WhiteHat Security, 2015

Pryme Hydration Model and Equations, Mark One Lifestyle 2015

2014 Website Security Statistics Report, WhiteHat Security, 2015

2013 Website Security Statistics Report, WhiteHat Security 2014

2014 Data Breach Investigations Report, Verizon, 2014

WhiteHat Security Index Equations, WhiteHat Security 2014

Trustworthiness Index for the Rest of Us, WhiteHat Security, 2014

2013 Data Breach Investigations Report, Verizon, 2013

Invited Industry Talks

"Error and Condition Handling in R" Orange County R User's Group, January 2017

Funded Research Proposals

Project Title: Biorheology and Transport Properties Of Artificial Blood Substitutes
Source: Vermont EPSCoR
Role: Lead Investator

Amount:	Funding for 24-months of graduate research fellow. Approximate value of $100,000 USD including fringe, international student differential and salary.
Duration:	1999-09-01 to 2001-08-31

Project Title:	Comparison of Spine Position on Various Mattress Designs
Source:	Natural Bed Systems
Role:	Lead Investigator
Amount:	$10,000 (approximate)
Duration:	1995-05 to 1995-09

Scholarships

1997-10	Graduate Student Mini Grant – Travel ($1,000 USD)
1997-05 to 1998-04	Ontario Graduate Scholarship (*Declined*) (~$15,000)
1997-09 to 1999-08	NSERC Graduate Scholarship (*Declined*) (~$18,000)
1997-01	University of Waterloo Graduate Scholarship ($1,000)
1996-08	University of Waterloo Graduate Scholarship ($1,000)
1996-05 to 1997-04	Ontario Graduate Scholarship (~$14,500)
1996-01	University of Waterloo Graduate Scholarship ($1,000)
1994-09	Nova Scotia Provincial Scholarship ($2,500)
1993-09	Dalhousie In-course Scholarship ($500)
1990-09	Green Gables Scholarship ($1,500)

Awards

1995-04	Principal's List
1991-12	Top Candidate (Basic Trades Training for Supply Technicians – Department of National Defence)
1991-05	Second Place Candidate (Speciality Trades Training for Medical Assistant – Department of National Defence)
1991-04	Gold Duke of Edinburgh Award in Canada
1990-03	Queen's Venture Award
1990-02	Most Improved Candidate (General Military Training – Department of National Defence)
1990-07	Top Mark (Basic Trades Training for Medical Assistants – Department of National Defence)
1989-04	Bronze Duke of Edinburgh Award in Canada
1987-03	Chief Scout Award

Research Experience

Doctoral Research: Department of Mechanical Engineering, University of Vermont, 1997-to date, (research advisor: Dr. Darren Hitt).

Thesis Title: In vitro haemorheology and haemodynamics of whole blood and perflurocarbonated oil emulsion in the microcirculatory system.

- 3D imaging of the separation surface in branching microfluid flow.
- Haemorheology in microcirculation.
- Biorheology of artificial blood substitutes under various microfluid flow conditions and thermal environments.
- Plasma skimming, stability of the separation surface and altered oxygen distribution due to changes in the haemodynamics.
- Design of instrumentation to measure rheology non-Newtonian fluids on a microscopic scale.
- Fahraeus and Fahraeus-Lindqvist effects in two-phase multicomponent flows.
- Very low Reynolds number branching microscopic flows.

Masters Research: Department of Mechanical Engineering, University of Vermont, 1997-2006, (research advisor: Dr. Tony Keller).

I have since transferred to the non-thesis option for this degree.

- Muscle activation patterns of international ranked man Belgium tennis players.
- Electromyographic (EMG) assessment of normal muscle activity using a “Step N' Go” cycle.
- Biomechanical assessment of spinal stenosis after surgical intervention.
- Neurological responses of direct manipulative thrusts to the vertebral body.
- Material properties of trabecular bone using transmission ultrasound.

Masters Research: Department of Kinesiology, University of Waterloo, 1995-1997, (research advisor: Dr. Stuart M. McGill).

Thesis Title: Objective Measurement of the Kinematics of the Lumbar Spine and Myoelectric Activity of Trunk Muscles in Low Back Pain Populations: Providing Objective Functional Diagnosis of Low Back Pain

- Kinematics of torso movements in chronic low back pain patients
- Development of an objective protocol to assess low back pain and detect malingers.
- Spectral analysis of electromyographic (EMG) changes during fatiguing tasks in low back pain patients and the effects of drugs on these parameters.
- Ergonomics of manual material handling with low loads.
- Ergonomics assessment of low back pain and long duration seating.
- Design of instrumentation to induce consistent and repeatable submaximal fatiguing contractions.

Undergraduate Honours Research: College of Leisure Studies, Health and Physical Education, 1990-1994, (research advisor: Dr. Laurance Holt).

Thesis Title: Scull boat dynamics of the new hatchet oar design compared with traditional oar design.

- Methodological considerations in instrumentation of scull boats for biomechanical research on open water.
- Kinematics differences between Hatchet and traditional oar design.
- Kinematics profile of elite C1 canoe paddler.
- Biomechanical assessment of low back injuries in national ranked scull rowers.
- Bin analysis of muscle activity in rats as a muscular dystrophy model.
- Computer modelling of manual material handling in 3D
- Development of an expert system for evaluating the ergonomics of lighting design when CRT display terminals are used.

Major Software Applications

Sonikpass

Designed the process and architecture of this authentication system. It used automatically scaling cloud based technologies, Big Data techniques such as EC2, S3, Hive, Hadoop, Cloudwatch, AWS API Gateway for analysis and reporting.

Web Application Language Detector

Using data mining and statistical learning (supervised and unsupervised), this application is capable of scanning hundreds of terabytes of web requests and responses to determine the programming languages used in a web application. Examining leaked information, this system determines the application languages, frameworks and other technologies to assist in targeted attacks.

Data Analysis System

Interfaces to Data Management System used to perform custom analysis and reporting.

Data Management System

This is a series of applications that receives data from RemoteData. It can handle complex data relations in a large scale database system. As data is entered into the system, it can be programmed to perform any analysis that is desired. Based on the analysis it creates events that can be used to update other systems, raise alarms, contact technicians or any other desired task.

RemoteData

This is a series of applications that interface with a number of third party application used to collect data from remote data loggers. In addition, it can connect to a number of devices using TCP/IP, CDMA, infrared, serial and parallel ports, and telephone modems. Extensive error handling and data validation is performed. Data is then processed and transferred to a remote storage system.

Flow Control

Flow Control is a data acquisition software application that is used to manage micro-fluid pumps and collect data from an A/D board. It uses real-time displays for monitoring the experiment. It can be configured to perform tasks based on experimental conditions.

ArtPocket

Using data from ArtOption and other third party database systems, this solution provided access to a large database of Important American Paintings. It consisted of applications for Windows 2000/XP, web and Windows CE devices. The database could be searched to retrieve custom record sets with images of the paintings. It also provided analysis of the record sets based on the index model in ArtOption and the hedging model in ArtHedge.

Novalis

This application is used to manage custom and package tours for travellers. Provided analysis or consumer trends, intelligent processing for optimizing quality of package and profitability.

ArtHedge

This application used the data from ArtOption to implement a hedging model. The model provides advice on what actions need to be taken in order to balance the hedging model. If perfectly balanced at all times, the model will give zero risk profits on the auctioning of Important American Paintings.

ArtOption

This application allows the user to catalogue information from various art sales, and then perform analysis on the sale results to determine the volatility of a work of art. This information is then used to develop insurance and indexes based on the estimated hammer price.

Resultant Joint Force 3D

Calculates the resultant dynamic joint forces and moments in three-dimension for any system of rigid linked segments but designed for gait analysis. Ground contact forces, moments and three-dimensional position information is entered into the system. Extensive signal processing and checks for anomalous or missing data are performed with error correction. Kinematic and kinetic profiles are determined. System was designed to support the addition of EMG models to estimate bone on bone contact forces.

Back Clinic Report Writer

The primary function of this package is to process raw EMG data and 3D kinematics of the spine for inclusion in a database. Raw EMG is processed to produce linear enveloped EMG this is clipped and normalized in time with the Kinematic data. This information is then stored in a database this allows comparison of a patient with special populations**.**

WatBak3D

Based on the industry standard ergonomic application, WatBak. This application performed a biomechanical assessment of static lifting tasks in three dimensions. It included enhanced data entry via a 3D figure that could be modified to match the industrial conditions.

VDT Lighting

An artificial expert system to analyse lighting designs where video display terminals (i.e. computer monitors) are to be used. The system identifies potential problems in single use and dual use environments (i.e. VDT and traditional paper environments). This provides basic advice on correcting the identified problems.

Battle for Domination

This game was designed to test high school students in their knowledge of Canada's early history. There were two teams in the game, the British and the French. The student was required to correctly answer multiple choice questions based on early Canadian history. The faster the correct response, the more money they were given from their respective governments. They would then use this money to purchase, soldiers, food, and supplies in order to attack their enemies forts. The country that captured all the forts won.

Chemical View

This program was designed as a teaching tool for introductory chemistry at the university level. It displayed a chemical on the screen and rotated it in three dimensions. Thus the user could view the structure of some common organic and inorganic compounds in three dimensions.

Dynamic Lift Analysts

This program uses digitized data of the human body and performs a kinematic and kinetic analysis of the movement. It works with the major sets of body segment parameters. Includes the ability to scale and pass the data through a digital filter then calculate the velocity and acceleration of the centre of gravity of each segment, and end points. It also computes the angular velocity and acceleration of the right horizontal angle of each segment plus determines the resultant joint moment, resultant joint force and the compressive and shear forces at the L4/L5. In order to be able to handle a variety of data file sizes, this program uses dynamic memory allocation.

Fatigue

This program takes and EMG signal and windows out a sample, calculates the Median Power Frequency and Mean Power Frequency by using a Fast Fourier Transformation. These values are then passed through a linear regression in order to obtain slope and intercept values.

Medical Supply System

This software package was custom designed for use by the Department of National Defence in the Medical Supply System. This system controlled all demanding and issuing of medical supplies. It allowed the user to maintain a large stock database and locate information on an item via a multiple of indexes. MSS can also track stock levels and allow the user to demand and issue stock items. Some of the more advanced features allow the user to save a custom set of system settings, use French or English menus, multilevel access, intelligent event tracking.

Periodic Table of Elements

This small program showed the user the periodic table of elements and how it was divided. The user could enter in the chemical symbol and the program would then display some basic information about the element.

Review

Review, was designed to take the course evaluation output from a SPSS program and separate the results by course number. The full course title and professors name along with summary information is added to each course. The results are then added to each professor's records.

School of Recreation, Physical and Health Education Inventory System

A basic inventory program written for the tracking of inventory. It maintains records on location and type of inventory. It also flags insurable items, classifies the items by their primary function, what organization funded their purchase and much more. The software allows the user to develop complicated searches using a series of indexes and filters then generate several quick reports or use a custom report generator.

Veterinary Hospital Information System

This system was designed to replace almost all paper work in a small veterinary hospital. It maintained animal health records, surgery and drug logs, appointments, accounts payable and receivable, surgery call backs, and inventory control.

War Game Management System

This system was designed to maintain a number of databases used in the management of a war game. It maintained information from medical questionnaires that the participants filled out. It also maintained several databases containing management information on the operation of the war game. It tracked scoring, length of time a POW was to be kept in custody, what POW's were imprisoned, financial information, etc.