Patrick McDowell
Professor of Computer Science
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Education

Ph.D. Computer Science, Louisiana State University, December 2005
M.S. Computer Science, University of Southern Mississippi, August 1999
B.S. Computer Science, University of Idaho, December 1984

Professional Experience

Southeastern Louisiana University

Professor - Southeastern Louisiana University, Hammond, La., 8/2017 – 8/2026

Associate Professor - Southeastern Louisiana University, Hammond, La., 8/2011 – 8/2017

Assistant Professor - Southeastern Louisiana University, Hammond, La., 8/2006 – 8/2011

Honors/Awards

Bell South Teaching Professorship, 2013 to 2016

Selected Grants

Title: "Development of an Autonomous Platform for Bald Cypress Swamp Restoration"; Grant number: 039C-16, Dr. Patrick McDowell, Computer and Information Sciences, Southeastern Louisiana University, $19,950.00

Title: "A Quadruped Robot for the Computer Science Capstone Project" submitted by Lu Yuan on behalf of Patrick McDowell. The approved amount is a Small Project grant of $949.95

"Memory and Learning Based Robot Control Architecture McDowell"; RCS 3 99K Summer 2007

"Limbed Systems and Gait Control for Walking Machine Applications"; McDowell and Asoodeh; Office of Technology 6 months 5k Fall 2006

"Learning-based Control System for Passive Dynamic Robotic Systems"; P. McDowell and T. Beaubouef; LEAD Dec 2007 - Sept 2008 8.2k Oct. 2007

"Robotics Sensor System Improvement"; P. McDowell Student Technology Fee Small Project Proposal 5k Dec. 2007

Service Activities

- Curriculum Committee - Chair
- Tenure and Promotion Committee
- Search Committee - Chair
- Publication reviews
- Mentor for FIRST Robotics team

Selected Courses

- Artificial Intelligence
- Computer Gaming
- Computer Graphics
- Computer Organization
- Data Science
- Data Structures
- Fundamental Algorithms
- Machine Learning
- Numerical Methods
- Operating Systems/Modern Computing Essentials
- Pattern Recognition for Scientist and Engineers
- Reinforcement Learning
- Robotics
- Signals and Systems

Selected Publications

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Naval Research Laboratory

Stennis Space Center, Ms., 10/2000 – 8/2006.

Scientific/Technical Contributions
Primary Research areas: Machine Learning, Artificial Intelligence, Robotics
Secondary Research areas: Formation Maneuvering/Navigation of autonomous vehicles using relative navigation, Sensors and processing, simulation

R&D Business Development
Contributed to team research directions, in the form of planning and proposals
"Littoral Alligator", NSWC - Crane
"Proposal for a Legged Mobile Sensor Platform", NSWC – Crane, Homeland Security
Supported scientists at other NRL branches and Naval Oceanographic Office (NAVO)

PI on enhancements for ROADCILS airborne data collection system

Cooperation and Supervision
Assists/directs team members and student workers in research efforts
Works with visiting faculty members to further research goals

Planning System Inc., 113 Christian Lane, Slidell La., 11/1985 – 10/2000

Programmer/Analyst
Languages: Fortran, C, C++, Java, Pascal, LabView, etc

Systems include: PC, Mac, Sun, SGI, VAX, HP, etc.

Responsible for design and implementation of several projects, including:

- Teletype Message Management – collected, decoded, displayed, stored synoptic weather messages; Naval Oceanographic Office (NAVO)
- MENTOR – Built software tools to create data bases, interfaces, and 3d displays; Naval Research Lab (NRL)
- GASS – Geophysical Airborne Survey System, responsible for data retrieval and dispatching functions; NAVO
- ADA, DIGIPHONE, etc. – primary programmer for real time data collection, analysis, control, archiving and display software for underwater acoustic systems; customers include Lockheed, Oakridge Labs, NRL, NAVO
- Real-time data collection/control, image processing, SONAR data analysis, etc.
- Current Vector Feature Tracking
- ROADCILS – airborne multi-channel real-time data collection, control, analysis, archiving, display
- Supported various agencies with software/hardware design and implementation.
    - Mapping, Charting and Geodesy Branch (NRL)
    - Remote Sensing Branch (NRL)
    - Ocean Instrumentation Branch (NAVO)
- Principle Investigator 1992 to 2000 - Responsible for acquisition of funding for self and team members, marketing, customer development

Fiscal management
PI for "Bottom Type Classification using Neural Networks" under company's Internal Research and Development program. Contributed to proposals to both private and federal agencies.
Supervisor 1996 – 2000
Mentored/career development of apprentice and journeyman programmers
Responsible for interviewing prospective employees
Responsible for administrative functions, timesheets, employee reviews, etc.

Selected Publications

Yang, K.P., McDowell, P., Rodi, A., Lemoine, A., Smith, C., and Freeman, J., "The Chicken Nanny: An Autonomous Heating and Feeding Chicken Coop," *American Journal of Engineering Research (AJER)*, ISSN 2320-0847, 14(12): 40-46, December 2025. (Published)

McDowell, M., Yang, K.P., and Bland, M.W., "Using A Simple Audio Compression as a Learning Tool for CS Students," *International Journal of Engineering Research & Technology (IJERT)*, ISSN 2278-0181, 14(11): 1-3, IJERTV14IS110179, November 2025. (Published)

Yang, K.P., McDowell, P., Norsworthy, C., Dahal, D., Burningham, A., and Boudreaux, M., "A Case Study in Using Fuzzy Logic to Combine Student's Opinion of Teaching (SOT) into a Final Defuzzified Result," *Journal of Multidisciplinary Engineering Science and Technology (JMEST)*, ISSN 2458-9403, 10(9): 16346-16350, September 2023.

McDowell, Yang, Regis, Burris, "A Simple Additive Neural Network Algorithm for Point Classification", IJERT, February 2022

Yang, K.P., McDowell, P., Devkota, Pradhan, Bhandari, Madewell, "Detecting Gas Leaks: A Case Study in IoT Technologies", EJETR, November 2021.

Mcdowell, P., and Yang, K.P., "Memory Based Learning Augmented with Simulated Annealing for a Two Joint Arm," International Research Journal of Advanced Engineering and Science (IRJAES), ISSN 2455-9024, 5(4): 244-247, November 2020.

Yang, K.P., McDowell, P., Demourelle, R., Parker, T. and Langstonirst, E., "3D Printing: A Custom-Built 3D Printer with Wireless Connectivity," SSRG International Journal of Computer Science and Engineering (SSRG-IJCSE), ISSN 2348 – 8387, 7(10): 1-5, October 2020.

Tran, Alkhadi, McDowell, Yang; Employer Engagement, Partnership and Service Learning in Computer Science Education for Workforce Readiness for the "For Our Future Conference" 2019.

Mirror World Robotics; Justin McLin, Ngu Hoang, Wesley Deneke, and Patrick McDowell, Department of Computer Science and Computer Engineering Southeastern Louisiana University, Hammond, LA, USA, ICISE 2017

P. McDowell, Multi-Joint Limb Control Using Low Energy Emergent Behavior Exploration Learning, TBD, December 2016

P.McDowell, Automated Logic Analysis Using a Sliding Correlation, Journal of Emerging Trends in Computing and Information Sciences, submitted November 2016

P.McDowell and D.Dale, "Protective Inflatable Garment System for People with Unstable Balance", Louisiana Academy of Sciences, Nichols State University, March 2015

P.McDowell and D.Dale, “Protective Inflatable Garment System for People with Unstable Balance”, Journal of Emerging Trends in Computing and Information Sciences, Vol. 6 No. 1, January 2015

P. McDowell and T. Beaubouef, “Neural Oscillators Programming Simplified, Applied Computational Intelligence and Soft Computing, 2012

McDowell, Beaubouef , Development of A small four-Legged Walking PlatForm, CCSC-MS, Conway AR, Feb 2011.

P. McDowell and T. Beaubouef ; Maintaining Control of a Robot’s Limbs Using the Bakery Algorithm CCSC-MS, Searcy, AR March 2010.

P. McDowell and T. Beaubouef ; Learning Leg Movement Patterns Using Neural Oscillators ACM SE, Oxford, MS April 2010.

McDowell, Koutsougeras; Graph Memory Development in a Robot Control Architecture CCSC-SC Hammond La., April 2009.

P. McDowell, T. Beaubouef, B. Bourgeois, D. Sofge, S. Iyengar, J.Chen; Graph Learning: A Three Step Approach to On Board Learning, Book Chapter - Nova, Aug. 2008.

T. Beaubouef and P. McDowell Ice [Air] Hockey and Tennis Balls: Playing at Computer Science Research with Robotics SIGCSE Bulletin (inroads), December 2007.

P.McDowell, F. Petry, B. Bourgeois; Robot Control in Dynamic Environments using Memory-Based Learning Springer Verlag, Aug. 2008.

McDowell, Bourgeois, Sofge, Iyengar; “Memory-Based In Situ Learning for Unmanned Vehicles” IEEE Computer December 2006

McDowell, Bourgeois, McDowell, Iyengar, Chen “Relative Positioning for Team Robot Navigation” Autonomous Robots 2006

Marvin Roe, Donald Brandon, Patrick McDowell, Brian Bourgeois, “A Flexible Client/Server Application for Robotic Control”, Proceedings of ACM Southeast 2005 Conference, Kennesaw, Georgia, 18-19MAR04

McDowell, Bourgeois, Iyengar, “Formation Maneuvering Using Passive Acoustic Communications,” 2004 IEEE Int. Conf. on Robotics and Automation, New Orleans, LA, April, 2004

M. Roe, B. Bourgeois and P. McDowell, “Multi-Robot Position Tracking”, Proceedings of ACM Southeast 2004 Conference

McDowell and Bourgeois, “Control Algorithms for UUV Teams Using Acoustic Communications”, NRL Review 2004 (short article)

Marvin Roe, Brian Bourgeois, Patrick McDowell, “Simulator Development for Multiple Unmanned Underwater Vehicles,” Proceedings of ACM Southeast 2003 Conference, Savannah, GA, March 2003

P. McDowell, J. Chen, B. Bourgeois, “UUV Teams, Control From A Biological Perspective”, Proceedings of the Oceans 2002 MTS/IEEE Conference, Biloxi MS, pp 331-337

P. McDowell, S. Iyengar, M. Gendron, B. Bourgeois, J. Sample, “Control/Learning Architectures For Use in Robots Operating in Unstructured Environments”, Southern Conference for Computing, October, 2001

P. McDowell, B. Bourgeois, J. Cheramie, J. Gravley, "Objective based Dynamic Navigation Planning", Proceedings of the 12th Intl. Symposium on Unmanned Untethered Submersible Technology, August 2001, Durham, NH

Brian Bourgeois, Patrick McDowell, “UUV Teams for Deep Water Operations,” Underwater Intervention 2001, New Orleans, La., February 2002

McDowell et al., “Control/Learning Architectures For Use in Robots Operating in Unstructured Environments”, P.hd. Seminar, Robot Vision Class, Louisiana State University, and Southern Conference for Computing, Hattiesburg Ms., October 2001

McDowell, “Robot Ant Simulation”, Lima, Peru, December 1999