

Hardware R&D Intern for Multifunction DAQ **June 2002 to September 2002**

- Designed and performed validation tests for 16-bit 800 kHz NI-6120 SMIO DAQ.
- Designed high-quality source to use with NI-5411 arbitrary function generator.

IBM Network Storage, Research Triangle Park, NC

Core Systems Software Developer for FlexNAS **June 2001 to September 2001**

- Designed and implemented highly available multihop communications subsystem.
- Participated in software development of various vital box services.

CallTech Communications, Columbus, OH

Information Technology Systems Engineer **June 1997 to May 2001**

- Responsible for the acquisition, setup, and administration of all hardware and software systems supporting NetWalk Internet service and web presence provider.
- Designed and implemented state-of-the-art open-source highly available load-balancing system supporting thousands of virtual servers.
- Developed call-center software for clients such as CompuServe, AOL, and Price-line.

MegaLinx Communications, Dublin, OH

Web Developer and Support Representative **June 1995 to May 1997**

- Produced web content for commercial clients.
- Assisted in administration of UltraSPARC, x86, 680x0, and PowerPC systems.
- Developed multi-platform open-source file-sharing solution.
- Provided technical support for Internet and web presence customers.

REFEREED
JOURNAL
PUBLICATIONS

- [1] Pavlic, T.P., and K.M. Passino. Generalizing foraging theory for analysis and design. *The International Journal of Robotics Research* [Special Issue on Stochasticity in Robotics and Bio-Systems Part 1]. 30(5):505–523. 2011. doi:10.1177/0278364910396551
- [2] Pavlic, T.P., and K.M. Passino. The sunk-cost effect as an optimal rate-maximizing behavior. *Acta Biotheoretica*, 59(1):53–66. 2011. doi:10.1007/s10441-010-9107-8
- [3] Pavlic, T.P., and K.M. Passino. When rate maximization is impulsive. *Behavioral Ecology and Sociobiology*, 64(8):1255–1265. August 2010. doi:10.1007/s00265-010-0940-1
- [4] Pavlic, T.P., and K.M. Passino. Foraging theory for autonomous vehicle speed choice. *Engineering Applications of Artificial Intelligence*, 22(3):482–489, April 2009. doi:10.1016/j.engappai.2008.10.017

SUBMITTED
JOURNAL
PUBLICATIONS

- [5] Pavlic, T.P., and K.M. Passino. Cooperative task processing. *IEEE Transactions on Systems, Man, and Cybernetics*. 2012. Submitted.

CONFERENCE
PUBLICATIONS

- [6] Pavlic, T.P., P.A.G. Sivilotti, A.D. Weide, and B.W. Weide. Verification of Smooth and Close Collision-Free Cruise Control. In: *Proceedings of the 2011 Symposium on Control and Modeling Cyber-Physical Systems*, October 20–21, 2011. Poster abstract.

- [7] Özgüner, Ü., A. Krishnamurthy, F. Özgüner, K. Redmill, P. Sivilotti, B. Weide, and T. Pavlic. CPS: Autonomous driving in urban environments. In: Proceedings of the 2011 NSF CPS PI Meeting, August 1–2, 2011. Poster abstract.
- [8] Pavlic, T.P. Stigmergic memory for real-time primal-space distributed optimization under constraints. In: Proceedings of the 50th IEEE Conference on Decision and Control and European Control Conference (CDC-ECC 2011), December 12–15, 2011. Submitted.
- [9] Pavlic, T.P., and K.M. Passino. Cooperative task-processing networks. In: Proceedings of the Second International Workshop on Networks of Cooperating Objects (CONET 2011), April 11, 2011.
- [10] Pavlic, T.P., and K.M. Passino. Cooperative task processing. In: Proceedings of the ICAM 2009 Symposium: Emergence in Physical, Biological, and Social Systems IV, November 13, 2009. Poster abstract.
- [11] Freuler, R.J., M.J. Hoffmann, T.P. Pavlic, J.M. Beams, J.P. Radigan, P.K. Dutta, J.T. Demel, and E.D. Justen. Experiences with a Comprehensive Freshman Hands-On Course – Designing, Building, and Testing Small Autonomous Robots. In: Proceedings of the 2003 American Society for Engineering Education Annual Conference & Exposition, 2003.
- OTHER PUBLICATIONS
- [12] Pavlic, T.P., P.A.G. Sivilotti, A.D. Weide, and B.W. Weide. Comments on ‘Adaptive Cruise Control: Hybrid, Distributed, and Now Formally Verified’. Tech. report OSU-CISRC-7/11-TR22, The Ohio State University, 2011.
- [13] Pavlic, T.P., and K.M. Passino. Cooperative Task-processing Networks: Parallel Computation of Non-trivial Volunteering Equilibria. Tech. report OSU-CISRC-3/11-TR05, The Ohio State University, 2011.
- [14] Pavlic, T.P. Design and Analysis of Optimal Task-Processing Agents. PhD thesis, The Ohio State University, Columbus, OH, 2010.
- [15] Pavlic, T.P. Optimal Foraging Theory Revisited. Master’s thesis, The Ohio State University, Columbus, OH, 2007.
- BOOKS IN PREPARATION
- [16] Pavlic, T.P., B.W. Andrews, K.M. Passino, and T.A. Waite. Foraging Theory for Engineering.
- PAPERS IN PREPARATION
- [17] Pavlic, T.P., K.M. Passino. Distributed optimization under constraints: Pareto-optimal intelligent lighting.
- [18] Pavlic, T.P. The ideal free distribution as degenerate form of nutrient-constrained optimization.
- GRANTS
- Senior staff, “Autonomous Driving in Mixed-Traffic Urban Environments”, NSF, ECCS-0931669, \$1,499,833, September 1, 2009 to August 31, 2012.
- Senior staff, “Cooperative LED Arrays for Preference-Adaptive Lighting in Smart Buildings”, NSF, EFRI-SEED preliminary proposal, 2009.
- REFeree SERVICE
- 49th Annual Conference on Decision and Control
 - Bioinspiration & Biomimetics
 - Behavioral Ecology
 - IEEE Transactions on Signal Processing
 - The International Journal of Robotics Research
 - Swarm and Evolutionary Computation
 - IEEE Transactions on Control Systems Technology
 - International Journal of Control

CONFERENCE SERVICE	Organizer/Associate Editor for invited session: "Correctness by Verification and Design", 14 th IEEE Conference on Intelligent Transportation Systems (ITSC 2011), Washington, DC, October 5–7, 2011.
STUDENT ADVISING	<p>Cory Henderson, James O'Donnell, Ian Neack, and Patrick Whewell. Undergraduate students in Electrical and Computer Engineering. Group design project on retrofittable vehicle-to-vehicle communications system for adaptive-cruise-control in mixed-traffic environments. 2012.</p> <p>Manas Agrawal. Graduate student in Computer Science and Engineering. Software verification and model checking applied to railroad safety problems. 2012.</p> <p>Sai Prathyusha Peddi. Graduate student in Computer Science and Engineering. Software verification applied to adaptive cruise control and instrumented intersection signal timing. 2011–2012.</p> <p>Jaeyong Park. Graduate student in Electrical and Computer Engineering. Provably correct on-line control synthesis for autonomous vehicles with hybrid dynamics. 2011–2012.</p>
TEACHING EXPERIENCE	<p>The Ohio State University, Columbus, OH</p> <p><u>Instructor</u> March 2012 to August 2012</p> <ul style="list-style-type: none"> • Instructor for ECE 683: Undergraduate Design Project <ul style="list-style-type: none"> • Students designed retrofittable vehicle-to-vehicle communications system to aid in the development of verifiably safe adaptive cruise control. • Design project folded into larger research project on autonomous vehicles in mixed-traffic urban environments. <p><u>Teaching Assistant</u> September 2007 to August 2009 (sample graded material and student evaluations available upon request)</p> <ul style="list-style-type: none"> • Instructor for ECE 327: Electronic Devices and Circuits Laboratory I <ul style="list-style-type: none"> • Autumn 2007, Winter (2) and Spring 2008 (2), Winter (2) and Summer 2009 • Responsible for 1-hour lecture and supervision of 3-hour laboratory. Students design and implement infrared modem and 8-ohm speaker driver. • Authored hundreds of pages of course material archived at http://www.tedpavlic.com/teaching/osu/ece327. • Grader for ECE 481 Ethics in Electrical and Computer Engineering <ul style="list-style-type: none"> • Autumn 2007 and Autumn 2008 • Instructor for ECE 209: Circuits and Electronics Laboratory <ul style="list-style-type: none"> • Autumn 2008 • Responsible for lecture and supervision of basic electronics laboratory. • Authored material at http://www.tedpavlic.com/teaching/osu/ece209. • Instructor for ECE 557: Control, Signals, and Systems Laboratory <ul style="list-style-type: none"> • Summer 2008 (2 sections) and Summer 2009 • Responsible for lecture and supervision of laboratory. Students used Simulink and dSPACE RT1104 units for linear system control design. • Authored material at http://www.tedpavlic.com/teaching/osu/ece557. • Lab Instructor for ECE 758: Control Systems Implementation Laboratory <ul style="list-style-type: none"> • Spring 2009 (2 sections) • Responsible for lecture and supervision of laboratory. Graduate and senior undergraduate students used Simulink, with dSPACE RT1104 units for analysis of and advanced control implementation for linear and non-linear systems. • Authored material at http://www.tedpavlic.com/teaching/osu/ece758.

National Science Foundation GK-12 Fellow September 2006 to October 2007

Developed, implemented, and evaluated daily inquiry-based fourth-grade science lessons for a local inner-city public school class.

Instructor

March 2002 to June 2004

- Member of Fundamentals of Engineering for Honors instructional team.
- Special graduate teaching appointment as undergraduate.
- Lectured weekly engineering laboratory for ENG H191, H192, and H193.
- Trained in-class undergraduate teaching assistants in laboratory procedure.
- Graded weekly lab reports and provided laboratory exams.

Teaching Assistant

September 2000 to March 2002

- Assisted Fundamentals of Engineering for Honors instructional team.
- Provided support to first-year engineering students (ENG H191, H192, and H193).
- Graded daily assignments on programming and drafting.
- Developed on-line journal submission and report system for Physics Education Research Group (PERG).

Undergraduate Researcher

September 2000 to March 2002

- Participated in the Europa Undergraduate Research Forum, a part of the Reusable Software Research Group.
- Studied component-based software engineering undergraduate pedagogy.
- Researched changes to RESOLVE/C++ implementation for ANSI compliance.

Grader

September 2011 to December 2001

- Graded daily electromagnetics assignments (ECE 311).

PROFESSIONAL MEMBERSHIPS

Institute for Electrical and Electronics Engineers (IEEE), Member, 2002–present

- IEEE Control Systems Society (2004–present)
- IEEE Computer Society (2009–present)
- IEEE Intelligent Transportation Systems Society (2011–present)
- IEEE Systems, Man, and Cybernetics Society (2011–present)
- IEEE Robotics and Automation Society (2011–present)

Animal Behavior Society, Member, 2011–present

Society for Mathematical Biology, Member, 2012–present

SERVICE

Recent contributor to several open-source software projects, including:

- Vim-LaTeX suite
- Vimperator and Pentadactyl Firefox extensions
- Git distributed version control system
- Mercurial distributed version control system
- Personal projects archived at <http://hg.tedpavlic.com/>

Frequent contributor to Wikipedia

- Significant contributions to articles on control theory, electronics, and signals and systems.

Contributor to Quora

- Contributions to articles on thermodynamics, chaos theory, electronics, and evolutionary biology.

OSU FIRST Robotics Team, The Ohio State University, 2000–2004

- Introduced middle school and high school students to science and technology by participating with them in national robotics competitions.
- Led 2002 team to regional silver medal Engineering Inspiration Award.
- Lead Team Mentor, 2002–2004
- Component Design Team Lead Mentor, 2001–2002

Director of Computers, Engineers' Council, The Ohio State University, 2002

Linux Virtual Server Project, 1999–2000

- Early member of the team that formed the open-source project that is now an important load balancing solution for the Linux software platform.

Greater Columbus Free-Net, 1995–1997

- Provided technical support services.

CompuTeen Bulletin Board System, 1993–1995

- Administrated dial-up bulletin board system.
- Founded and administrated TeenLiNK, an international electronic mail network that spread through the United States, Canada, and Australia and delivered mail over a series of electronic dial-up drop offs.

AWARDS

National Science Foundation

- GK-12 Fellowship, 2006–2007
- Graduate Research Fellowship Honorable Mention, 2005

The Ohio State University

- Dean's Distinguished University Fellowship, 2004–2010
- Electrical and Computer Engineering Bradshaw Scholarship, 2002–2004
- Electrical and Computer Engineering Shafstall Scholarship, 2001–2003
- University Scholarship, 1999–2003

APPLICATION
AREAS

Autonomous/Unmanned Vehicles, Flexible Manufacturing Systems, Distributed Power Generation, Intelligent Lighting, Power Demand Response, Microgrids, Smart Grids

HARDWARE AND
SOFTWARE SKILLS

Analog and Digital Electronics:

- Bipolar and FET implementations of continuous and switched amplifiers, modulators, converters, and filters
- Computer-Aided Design Tools: Cadence OrCAD, NI Multisim, SPICE, pst-circ

Embedded and Real-time Systems:

- Software and hardware development with several MCU and DSP platforms (e.g., Motorola MCU's, Texas Instruments DSP's, Atmel ATmega MCU's, Microchip PIC MCU's, and others)

Instrumentation, Control, Data Acquisition, Test, and Measurement:

- dSPACE hardware (e.g., RTI1104) and Control Desk software, Simulink, LabVIEW and other National Instruments control and data acquisition hardware and software (e.g., MIO, SMIO, DSA, DMM, and others), Hewlett-Packard and Agilent bench-top equipment

Computer Programming:

- C, C++, Java, JavaScript, NetLogo, Pascal, Perl, PHP, Lisp, UNIX shell scripting (including POSIX.2), GNU make, AppleScript, SQL, MySQL, MATLAB, Maple, Mathematica, and others

Version Control and Software Configuration Management:

- DVCS (Mercurial/MQ, Git/StGit), VCS (RCS, CVS, SVN, SCCS), and others

MATLAB skill set:

- Linear algebra, Fourier transforms, Monte Carlo analysis, nonlinear numerical methods, polynomials, statistics, N -dimensional filters, visualization
- Toolboxes: communications, control system, filter design, genetic algorithm and direct search, signal processing, system identification

Software Verification:

- KeY, PRISM, KeYmaera

Information/Internet Technology:

- Networking (UDP, TCP, ARP, DNS, Dynamic routing), Services (Apache, SQL, MediaWiki, POP, IMAP, SMTP, application-specific daemon design)

Productivity Applications:

- $\text{T}_{\text{E}}\text{X}$ ($\text{L}_{\text{A}}\text{T}_{\text{E}}\text{X}$, $\text{B}_{\text{I}}\text{T}_{\text{E}}\text{X}$, PSTricks), Vim, most common productivity packages (for Windows, OS X, and Linux platforms)

Operating Systems:

- Microsoft Windows family, Apple OS X, IBM OS/2, Linux, BSD, IRIX, AIX, Solaris, and other UNIX variants

EXPERTISE

Mathematics:

- Applied Mathematics, Real and Complex Analysis, Measure Theory, Differential Geometry, Game Theory, Graph Theory, Combinatorics

Control Theory and Engineering:

- Linear and Nonlinear Systems Theory, Feedback, Variable Structure Systems and Sliding Modes, Distributed and Intelligent Control, Dynamic Optimization, Biomimicry, Bioinspiration, Hybrid and CyberPhysical Systems

Communications and Signal Processing:

- Probability, Random Variables, Stochastic Processes, Information Theory, Estimation, Networks

Computer Science and Engineering:

- Model Checking (automated, distributed, hybrid, probabilistic), Hybrid Automata, Software Verification, Component-Based Reusable Software

Natural Sciences (Biology, Neuroscience, Psychology, Anthropology):

- Behavioral Ecology, Foraging Theory, Cooperation/Altruism, Impulsiveness, Evolution

REFERENCES
AVAILABLE TO
CONTACT

Available upon request. Otherwise, see:

http://www.tedpavlic.com/engjobsearch/docs/pavlic_reference_list.pdf.

MORE
INFORMATION

More information and auxiliary documents can be found at

<http://www.tedpavlic.com/engjobsearch/>.