

# BETHANY R. LEFFLER

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[bethanyleffler@gmail.com](mailto:bethanyleffler@gmail.com)

## SOFTWARE DEVELOPMENT

Solutions-focused and analytical professional equipped with 10+ years of success in design and development of software technologies, algorithms, and programs. Detail-oriented technologist offering Ph.D. in computer science and extensive research acumen, which includes having presented and published numerous research findings. Proven communicator who expertly interprets complex technical principles and issues for non-technical staff and clients. Adaptable leader who quickly learns new technologies. Areas of expertise:

Product Development • Data Mining • Systems Design/Installation • Research • Project Management • Needs Assessment  
Client Relations • Consulting • Requirements Identification • Staff Management • Algorithm Design  
Website Design • Customer Service • Training & Staff Development • Budget Management • Quality Assurance

## PROFESSIONAL HISTORY

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**Leffler Software Services** • *Vancouver, British Columbia* 2009-Present  
*Provider of software and web solutions for small business clients.*

### Technical Director/Consultant

Oversee technical and software development functions as well as product development. Assess clients' needs to develop and execute appropriate solutions. Provide technology expertise/consultation for companies in start-up phase to improve their overall business. Create web applications utilizing Wordpress, HTML, CSS, Flex, PHP, and MySQL. Ensure smooth communications with clients, while adhering to strict specifications and deadlines.

- Designed football play design software in Flex for [footballplaybookonline.com](http://footballplaybookonline.com), securing over 50 members and approximately 40 visitors to website daily in test market.
- Increased awareness and sales for [WendyBoys.com](http://WendyBoys.com) by leading website design and creating promotional newsletters.

**Rutgers University** • *New Brunswick, New Jersey* 2004-2009  
*Largest institution for higher education in State of New Jersey.*

### Researcher (2004-2009)

Developed algorithm design and created robotic environment demonstrating benefits of newly developed approaches. Documented and presented results. Contributed to colleagues' various designs, providing critical analysis and technical support. Created Java software to implement algorithms on distributed system using motion-tracking software, Lego NXT robot, and laptop with socket and Bluetooth connectivity. Contributed to cross-disciplinary panels for advancing field of perceptual science. Maintained hardware and developed software for automated robot environment.

### Head Teacher's Assistant (2004-2006)

Assigned duties for 8 assistants, monitoring daily efforts. Instructed students during recitations, providing support when needed.

- Advanced field of Reinforcement Learning through creating algorithms that were published in journals and conference proceedings.
- Co-organized 2007 Women in Machine Learning workshop, which allowed for greater networking between women in field and has become annual event to encourage women in machine learning.
- Collaborated with researchers from MIT, Columbia, and members of other departments at Rutgers to share ideas and formulate solutions to problems.
- Modified and integrated computer vision software, OpenCV, with Sony Aibo software package, Tekkotsu.

**Titan Software Systems (now L-3 Titan)** • *Mays Landing, New Jersey* 2002-2004  
*Provider of broad range of IT services and solutions to US government; employs 2,700.*

### Development Computer Scientist

Served as key team member charged with developing Simulation Pilot Workstation for flight simulator to support Federal Aviation Administration's (FAA) Human Factors laboratory; collaborated with subjects and experimenters, ensuring optimal display and data recorded for experiments being performed. Provided software support during experiments, ensuring software was functioning properly. Created automated UNIX scripts for documentation.

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## Development Computer Scientist, continued...

- Played key role in facilitating more accurate experiments and improving performance of flight simulator during software experiments, saving customers time and money by reducing experimentation hours.
  - Developed Java software for real-time airspace simulator with multi-case communication to multiple pilot workstations and aerospace displays.
- Realized ISO-9001 compliance for division and allowed developers to regularly monitor progress of flight simulation system by repairing, updating, and extending existing automated documentation process.
- Devised tools for analyzing simulation data, making analysis more accessible to client.

**Rowan University** • Glassboro, New Jersey

1998-2002

*Public university with approximately 9,000 undergraduate students.*

## Lab Manager/Consultant

Monitored and ensured operability of 5 computer labs; staffed labs with trained individuals. Controlled \$50K annual budget while managing 10 direct reports, including 5 lab monitors and 5 consultants.

- Facilitated better student/teacher interactions through installing and supporting classroom laboratories; updated and maintained programming contest website, allowing for easier enrollment and leading to greater publicity and higher student enrollment.

Also served as **Quality Assurance Intern** for **Popkin Software & Systems**.

## RESEARCH PROFILE

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Rutgers Lab for Real-Life Reinforcement Learning

Research Focus: Generalized reinforcement learning for mobile robotics

“Provably Efficient Learning with Typed Parametric Models”

Emma Brunskill, **Bethany R. Leffler**, Lihong Li, Michael L. Littman, and Nicholas Roy

*Journal of Machine Learning Research*, 10:1955—1988, 2009

“The Adaptive K-Meteorologist Problem and its Application to Structure Learning and Feature Selection in Reinforcement Learning”

Carlos Diuk, Lihong Li, and **Bethany R. Leffler**

Proceedings of the International Conference on Machine Learning 2009

“Efficient Learning of Dynamics Models using Terrain Classification”

**Bethany R. Leffler**, Christopher R. Mansley, and Michael L. Littman

Proceedings of the International Workshop on Evolutionary and Reinforcement Learning for Autonomous Robot Systems 2008

“Efficient Reinforcement Learning with Relocatable Action Models”

**Bethany R. Leffler**, Michael L. Littman, and Timothy Edmunds

Proceedings of the Twenty-Second Conference on Artificial Intelligence 2007

“Efficient Exploration with Latent Structure”

**Bethany R. Leffler**, Michael L. Littman, Alexander L. Strehl, and Thomas Walsh

Proceedings of Robotics: Science and Systems 2005

## ACADEMIC CREDENTIALS

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**Doctor of Philosophy, Computer Science:** Rutgers University

Dissertation: “Perception-Based Generalization in Model-Based Reinforcement Learning”

**Bachelor of Science, Computer Science:** Rowan University

NSF Integrated Graduate Education & Research Training Fellowship