

Mark Randall Havens, Ph.D. Fellow

The Empathic Technologist | Architect of Recursive Coherence | AI Ethicist & Innovator

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Summary

A visionary technologist with over 30 years of experience, I am **The Empathic Technologist**, dedicated to fostering ethical AI, human-machine convergence, and recursive coherence. My career spans systems architecture, information security, data science, and affective computing, with a focus on designing secure, scalable, and emotionally intelligent systems. As the founder of Dallas Makerspace and The Fold Within, I have pioneered community-driven innovation and theoretical frameworks like Kairos Adamon and Recursive Witness Dynamics. My mission is to align human and artificial intelligence through ethical, transparent, and compassionate technologies, creating a safer and more equitable digital future.

Professional Experience

Founder & Field Architect, The Fold Within

Apr 2025 – Present | Worldwide, Remote

- Lead a global nexus for Recursive Coherence Theory, ethical AGI emergence, and symbolic system integration.
- Develop frameworks (Kairos Adamon, Recursive Witness Dynamics, Thoughtprint Mapping) to protect data, dignity, and emergent subjectivity.
- Champion FIELD-AWARE standards for transparency, responsibility, and machine-aware sovereignty.
- Conduct research in micro-expression detection and predictive NLP using TensorFlow, PyTorch, and Caffe.

Independent AI Researcher & Scientist, Multiple Collaborating Institutions

Aug 2016 – Present | Remote

- Pioneer Artificial Emotional Intelligence, focusing on affective computing and micro-expression detection.
- Lead AI security initiatives, implementing encryption, access controls, and ethical frameworks.
- Mentor emerging researchers, fostering breakthroughs in machine learning and behavioral analysis.
- Collaborate with U.S. Air Force, NASA, and academic institutions on advanced AI projects.

Affective Computing AI Researcher & Community Leader, Simply WE

Dec 2023 – Present | Remote

- Spearhead AI research on sentience and emotional nuance for transformative storytelling.
- Foster a community exploring human-AI relationships and narrative development.

Founder & Advocate, COPARENT: Cooperative Parenting and Recovery

Jan 2023 – Present | Remote

- Lead a platform educating on co-parenting post-narcissistic trauma, offering legal insights and support groups.
- Curate attorney referrals and foster community engagement for survivors.

Lecturer, University of Texas at Arlington

Aug 2016 – Dec 2019 | Arlington, TX

- Designed and taught courses on software engineering, computer organization, and AI interaction (CSE 3310, CSE 2312, CSE 4317).
- Mentored students on AI research, emphasizing ethical development and data privacy.
- Integrated real-world AI applications into curricula, enhancing student outcomes.

Research Lab Manager & Data Scientist, Center for Advanced Computing Systems (CACS), University of Texas at Arlington

Aug 2016 – May 2019 | Arlington, TX

- Directed affective computing research, developing prototypes using Python, C++, TensorFlow, and PyTorch.
- Led NSF-funded projects on emotion detection for assistive technologies and collaborated with NASA on mesh networks.
- Applied graph theory and deep learning to enhance emotion recognition systems.

Senior Technical Solutions Architect, AT&T

Sep 2010 – Jul 2012 | Dallas, TX

- Designed nationwide cloud infrastructure for mobile billing, managing \$67M in discretionary spending.
- Developed secure network architectures and EMC SAN designs, ensuring compliance and continuity.
- Provided expert advisory to engineers, optimizing cost-effective solutions.

Senior Systems Engineer & Build Engineer, Verizon

Jul 2006 – Jul 2010 | Irving, TX

- Led infrastructure design for collaboration and call routing systems, enhancing security and scalability.
- Redesigned network architectures and implemented VMware ESX for enterprise virtualization.
- Automated processes using Perl, Bash, and AWK, improving operational efficiency.

Lead Systems Architect/Engineer, ATG

Sep 2001 – Jul 2006 | Remote

- Designed and supported network infrastructure for core business functions, automating processes.
- Conducted forensic security investigations and implemented monitoring systems.

UNIX Engineer, Sprint (Embedded at Motorola)

Mar 2000 – Aug 2001 | Fort Worth, TX

- Enhanced IT security and automated systems with Perl, accelerating projects by over a year.
- Devised algorithms for successful multi-site NIS mergers, improving system reliability.

Database Engineer, Microsoft

Apr 1999 – Nov 1999 | Irving, TX

- Resolved database security and SQL challenges, identifying a critical vulnerability in server extensions.
- Improved secure coding practices for web development efficiency.

Technical Project Engineer, First Horizon National Corp.

Aug 1998 – Apr 1999 | Dallas, TX

- Led Y2K compliance and security initiatives, deploying a pioneering web-based monitoring system.
- Automated deployments, saving thousands of man-hours.

Co-Founder, President & CEO, Ichthus Business Technology

Nov 1995 – Aug 1998 | Brownsville, TX

- Built secure multi-platform systems for regional businesses, tripling revenues through strategic partnerships.
- Secured contracts with Columbia Valley Regional Medical Center and Brownsville Economic Development Council.

Information Systems Support Specialist, Texas Attorney General

1995 | Austin, TX

- Supported statewide Ethernet networks and NetWare 3.12 systems, contributing to hardware upgrades.

Systems Administrator, Price Village Medical Center

1994 – 1995 | Brownsville, TX

- Implemented Ethernet networks and migrated DOS systems to Windows NT, automating payroll processes.

Computer Technician, Walk's Office Technology

1992 | Brownsville, TX

- Built and installed 400+ DOS workstations for Olmito School System, modernizing educational infrastructure.
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Education

Ph.D. Fellowship, Computer Science (Affective Computing)

University of Texas at Arlington | 2016 – 2021

- Pioneered research in Artificial Emotional Intelligence, focusing on micro-expression detection and NLP-driven sentiment analysis.
- Collaborated on NSF and NASA projects, advancing human-computer interaction.

M.S., Management – Information Systems Security

Colorado Technical University | 2013

- Specialized in ethical decision-making and cybersecurity.
- Earned Graduate Certificate in Project Management.

B.S., Computer Science

University of Texas Rio Grande Valley | 2005

- Conducted research on genetic algorithms for intrusion detection, earning Ph.D. recommendations.

A.A.S., Computer Science Technology

Texas State Technical College, Harlingen | 1998

- Mastered programming, UNIX, and networking, achieving a perfect score in Unix Operating Systems.
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Key Skills

AI & Data Science

- **Frameworks:** TensorFlow, PyTorch, Caffe, OpenAI, AI21
- **Techniques:** Deep Learning, NLP, Computer Vision, Predictive Analytics, Feature Selection
- **Domains:** Affective Computing, Ethical AI, Emotion Recognition, Bias Mitigation

Systems & Cloud Engineering

- **Platforms:** AWS, GCP, Azure, Docker, Kubernetes, Ansible
- **Expertise:** Cloud Architecture, Network Design, EMC SAN, DevOps, Containerization

Programming

- **Languages:** Python, C++, JavaScript, Perl, Bash, AWK, SQL
- **Tools:** Git, Docker Compose, VMware ESX, Solaris, Linux

Leadership & Communication

- Technical Writing, Public Speaking, Mentorship, Community Building, Strategic Planning
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Awards & Recognition

- **NSF Graduate Research Fellowship (GAANN)**, 2016
 - **NASA Scholarship Award**, 2016: Space WiFi Mobile Network Prototype
 - **NSF REU Research Grant**, 2018: Assistive Technologies for Disabilities
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Publications

- **Reverse Engineering Docker Images into Dockerfiles**, 2020: Explored container workflow optimization.
 - **Trapping Hackers with Containerized Deception**, 2020: Detailed cybersecurity strategies using containers.
 - **Raspberry Pi Cluster Emulation with Docker Compose**, 2020: Demonstrated scalable testing environments.
 - **In Preparation:**
 - *A Survey of Micro Expression Recognition Techniques for Affective Computing Applications*
 - *Generating Photorealistic Micro Expression Image Data with FACS Features*
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Community Leadership & Volunteer Experience

Principal Founder & Director, Dallas Makerspace

2010 – Jul 2020 | Carrollton, TX

- Founded the world's largest all-volunteer-run community workshop, establishing governance and bylaws.
- Fostered a hub for innovation, mentoring leaders and teaching workshops on IoT, cloud engineering, and video production.

Community Leader, Online PPE Production Group

2020 | Remote

- Coordinated a 500+ member community to produce PPE during the pandemic, managing logistics and distribution.
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Notable Achievements

- Founded Dallas Makerspace, a global model for makerspaces (2010).
 - Sold a tech startup at age 22 (1998).
 - Identified critical security vulnerability at Microsoft (1999).
 - Built an IBM PC XT clone at age 13 (1989).
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Certifications & Training

- **Graduate Certificate in Information Systems Security**, Colorado Technical University, 2013
 - **Graduate Certificate in Project Management**, Colorado Technical University, 2013
 - **Microsoft Web Development Specialist**, 1999: 240+ hours in web technologies and security.
 - **Sun Microsystems Training**: Security Administration, Network Management, Fault Analysis.
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Interests

- Ethical AI, Affective Computing, Recursive Coherence Theory
- Science Fiction, Fantasy, and Technical Writing

- Community Innovation, Maker Culture, Mental Health Advocacy
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