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Colorado Springs
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CREDENTIALS
PhD
Artificial Intelligence

Juris Doctor
High technology law focus

MBA
LT&M: High Tech Transfer

Bachelor of Science
Computer and Electrical Engineering

LEADERSHIP
AI strategy
Executive advisory
Research direction
Multidisciplinary teams
Technology translation
AI risk evaluation

PERSPECTIVE
Industry
Government
Financial services
Academic research

YEARS OF OPEN DOOR POLICY
C-Suites
2-star military generals
Board of Regents
First-tier law firm partners
Delta Forces
World renown Sports Stars
Green Berets

RORY A. LEWIS

PhD Artificial Intelligence

EXECUTIVE AI LEADERSHIP

AI STRATEGY • RESEARCH LEADERSHIP • INTELLIGENT SYSTEMS

EXECUTIVE PROFILE

AI leader advising C-suite executives and senior military leaders on AI strategy, research, and implementation while making complex AI clear and understandable.

Leads multidisciplinary AI work across financial services, defense, healthcare, and academic research, turning advanced capabilities into practical choices that maximize ROI.

Combines AI research and computer and electrical engineering with legal and business training to move systems rapidly from concept to production deployment.

SELECTED ACCOMPLISHMENTS

Executive translation
Extensive track record advising C-suite executives, two-star generals, and world-renowned elite athletes, translating high-stakes strategic priorities into production-grade AI architectures and operational systems.

Financial intelligence
Designed and modeled AI-driven financial infrastructure and decision systems using behavioral and transactional data.

Independent AI oversight
Developing INNERTRON SENTINEL, a neuromorphic research architecture for recognizing unreliable AI behavior.

INDUSTRY AND EXECUTIVE EXPERIENCE

Envel Bank

C-suite AI Strategic Advisor | Jan 2018 – Dec 2023 *(see here)*

- Worked with Envel and Bain Capital to develop AI-driven financial decision systems and redesign AI-enabled workflows, aligning automation with business priorities.
- Developed predictive models and decision systems using financial, behavioral, and transactional data.
- Mapped business processes and formalized decision logic to guide AI-enabled automation and product development.

MIT Lincoln Labs, Inc.: Delta Forces Special Forces Operations

Special Operations AI research contract | Oct 2020 - Oct 2022

- Advised executive leadership on AI strategy, technology direction, and product development.

RAND Corporation

Senior Research Scientist | Nov 2017 - Oct 2020

- Developed and evaluated AI and analytical methods for decisions shaped by uncertainty, system reliability, and the consequences of error.
- Translated analytical findings into clear recommendations for senior decision-makers.

SKY Professional Cycling Team

AI Operations Strategist | Apr 2015 - Aug 2017 *(see here)*

- Developed an AI system to provide professional cyclists with lactate-threshold warnings.

Greg LeMond (LEMOND)

AI Bicycle Performance and Design Engagement | 2015 *(see here)*

- Designed and implemented AI supporting next-generation bicycle performance and design.

United States Olympic Committee

AI Transformation Strategist | May 2009 - Oct 2014 *(see here)*

- Principal investigator on a $70,000 AI research project for elite female endurance athletes (2012–2013).
- Developed AI-driven decision support for female Olympic endurance athletes to optimize training, maximize performance, preserve menstrual function, and prevent exercise-associated amenorrhea.

RORY A. LEWIS

JD | PhD

RESEARCH FOCUS

Neuromorphic computing
Independent AI oversight
Neuro-symbolic AI
Autonomous systems
Mathematical modeling

EDUCATION DETAILS

PhD
University North Carolina 2009
Juris Doctor
Syracuse 1998
BS Computer & Electrical Engineering
Syracuse 1993

KEY NOTE ADDRESSES

Palo Alto: Eric Schmidt
Nice France: BRAININFO
Pentagon: 4-Star Generals

CORE TECHNICAL CAPABILITIES

Generative & Agentic AI:

LLM workflows • Retrieval-Augmented Generation (RAG) • semantic search • agentic workflows • prompt evaluation • AI observability • model and system evaluation

Machine Learning & Decision Intelligence:

Deep learning • neural architecture optimization • predictive modeling • classification and regression • domain adaptation • statistical modeling • experimental design • intelligent decision support • PyTorch • TensorFlow • Keras • scikit-learn

Advanced AI & Computational Neuroscience:

Neuromorphic computing • neuro-symbolic AI • computational neuroscience • knowledge discovery • fuzzy logic • rough sets • formal logic • mathematical modeling • independent AI oversight research

Autonomous & Embedded Systems:

Autonomous systems • unmanned aircraft systems • Android Tactical Assault Kit (ATAK) integration • AI server integration • embedded intelligence • FPGA-based systems

Software Engineering & Accelerated Computing:

Python • C/C++ • Bash • MATLAB • JavaScript • SQL (working knowledge) • JSON • REST APIs • Docker • Git • Linux • CUDA/GPU programming • CPU/GPU performance optimization • large-scale computational modeling

SELECTED INTERNATIONAL KEYNOTE ADDRESSES

- The *Convergence of Artificial Intelligence and the Internet of Things*: Palo Alto, CA: Presented DNNs, GPU computing, and artificial consciousness research to an audience including **Eric Schmidt** *(see here)*.
- *BRAININFO*: Sixth International Conference on Neuroscience and Cognitive Brain Information, Nice, France: Delivered a keynote on AI-driven sentience and common-sense reasoning *(see here)*.
- *Second Annual Autonomous Capabilities for DoD Summit*: Keynote speaker and panel moderator. Briefed senior DoD leadership, including two four-star generals, on AI and autonomous military systems *(see here)*.

LEADERSHIP AND RESEARCH

Concurrent industry, government, and academic engagements

University of Colorado Colorado Springs

Associate Professor of Artificial Intelligence | Jul 2008 - Present

- Program Director, Master's Degree Program in Computer Science, 2010–present. Led the graduate program and chaired computer science faculty hiring committees.
- Connected AI research with mathematical modeling, software development, prototyping, and evaluation across industry and government engagements.
- Research spans neural architectures, neuromorphic computing, and intelligent systems.

Warfighters Edge Research Laboratories

Fellow in Artificial Intelligence (United States Air Force Academy) | Nov 2012 - Oct 2020 *(see here)*

- Conducted advanced AI and autonomous systems research, working with senior military leadership on technologies relevant to operational needs.
- Integrated unmanned aerial systems, Android Tactical Assault Kit platforms, and AI servers to connect tactical interfaces with AI processing infrastructure.
- *Additional sub-contract. Worked with 10th Group (Green Berets) Colorado. Created artificial intelligence, engineering, specific to their ATAKs for SOF operational and mission-critical environments* *(see here)*.

Space War Preparation Center

Director | 2019–2020

- Selected by the University of Colorado Board of Regents to serve as liaison among Space Force, the University of Colorado system, and the City of Colorado Springs.

University of Colorado Anschutz Medical Campus

Adjunct Professor, Neurology and Pediatrics | Jan 2009 - Jun 2018

- Applied AI, computational neuroscience, and mathematical modeling to interdisciplinary neurological and medical research *(see here)*.

SELECTED RESEARCH INITIATIVE

INNERTRON SENTINEL *(see here)*

- Developing an independent, brain-inspired AI oversight architecture to identify unreliable generative AI behavior and support human decision-making.
- Investigating synthetic sentience and metacognitive mechanisms for monitoring AI behavior.
- Combines developmental connectome modeling, synthetic synaptogenesis, fuzzy logic, rough sets, and formal logic to investigate reliability and graded warnings.

LEADERSHIP AND SELECTED CONTRIBUTIONS

FUNDED RESEARCH AND ENGINEERING

- MAOTHRA — Multivariate Algorithms for Optimized Test Heuristics and Real-Time Analysis: Developed software-intensive systems test-optimization methods and algorithmic prototypes; conducted Redstone Arsenal field testing. $2.68M *(see here)*.
- EASE adaptive PTSD treatment project. $1.8M.
- High-speed imaging and laser diagnostic facility project. $1.2M.
- NSF Research Experiences for Undergraduates Sites project. $375K.
- NSF STTR dependency-support network project. $150K.
- AMRDEC/MDA model-based simulation project. $94K.

INNOVATION AND COMMERCIAL APPLICATION

- *Inventor of the Year*. University of Colorado, 2011. Recognized for AI and machine-learning work in computational neuroscience and intracortical brain-electrode applications *(see here)*.
- *minedICE*. Co-developed a neurophysiological knowledge-discovery platform using intracortical recordings and AI to detect and predict pathological neurological events.

ADDITIONAL PROFESSIONAL EXPERIENCE

Brasfield & Gorrie, LLC

Information Technology Project Manager | Aug 2002 - Nov 2004

Led technology requirements and implementation coordination for a major hospital construction project. Coordinated executives, engineers, architects, contractors, and vendors across telecommunications, networking, structured cabling, and electrical infrastructure; managed technical specifications, competitive bidding, and contractor evaluation.

Skjerven Morrill MacPherson Franklin and Friel

Associate, High Tech Litigation | Jul 1998 - Aug 1999

Applied microprocessor and electrical engineering knowledge to high-technology patent litigation involving *AMD v. Intel*.

Fulbright & Jaworski LLP *(Now Norton Rose)*

Associate, High Tech Litigation | Oct 1996 - Jul 1997

Worked on high-technology patent matter involving the electrical circuitry on microprocessors; began as a summer associate.

EARLIER ACADEMIC AND EXECUTIVE EDUCATION APPOINTMENTS

- **University of Colorado Denver** - Assistant Professor, Jan-Dec 2012. Filled an emergency computer science vacancy, teaching C++ and Objective-C.
- **University of North Carolina at Charlotte** - Faculty, School of Electrical Engineering, Jan 2007-Jul 2008. Combined engineering teaching and doctoral research with commercial industry engagements.
- **UNC Charlotte Belk College of Business** - Adjunct Professor of Business, Jan 2006-Jun 2008. Taught MBA courses linking Internet technologies, information systems, e-commerce, and financial services.
- **Catawba College** - Faculty, Jan 2006-Jun 2008. Taught undergraduate business principles, management, and technology applications.
- **Bank of America** - MBA Professor, Nov 2005-Jun 2008. Taught MBA-level courses to executives and managers while completing doctoral work, linking emerging technologies, information systems, e-commerce, and digital financial services with their business implications.
- **University of Warsaw** - Summer lecturer, 2004-2007.

SELECTED SCHOLARLY CONTRIBUTIONS

Author of 60+ peer-reviewed publications spanning AI, computational neuroscience, healthcare AI, and intelligent decision systems.

[1] **R. Lewis**, M. Bihn, Z. Liu, and D. S. Barbotko, "A self-learning neuromorphic system," in *Proc. 9th Int. Conf. Neuroscience and Cognitive Brain Information (BRAININFO)*, Mar. 10–14, 2024, pp. 11–16, Athens, Greece.

[2] T. Sultana, K. R. Walcott, and **R. Lewis**, "JSP-LOC: Schema for developing datasets and ML prognostic algorithm to prevent adversarial attack in satellite laser communication," in *Proc. Future of Information and Communication Conf. (FICC)*, Apr. 4–5, 2024, vol. 1, pp. 389–401, doi: 10.1007/978-3-031-53960-2_25, *Berlin, Germany.*

[3] K. Nesterenko and **R. Lewis**, "Rough sets for intelligence on embedded systems," in *Proc. 26th Int. Symp. Methodologies for Intelligent Systems (ISMIS)*, Oct. 3–5, 2022, pp. 230–239, doi: 10.1007/978-3-031-16564-1_22, Cosenza, Italy.

[4] C. Hendrix and **R. Lewis**, "Survey on blockchain privacy challenges," in *Proc. 2nd Workshop Blockchain and Enterprise Systems (BES), CEUR Workshop Proc.*, Nov. 24, 2021, vol. 3031, pp. 55–63, Riga, Latvia.

[5] **R. Lewis**, "Rough set & Riemannian covariance matrix theory for mining the multidimensionality of artificial consciousness," in *Proc. 10th Int. Conf. Web Intelligence, Mining and Semantics (WIMS)*, Jun. 30–Jul. 3, 2020, pp. 248–251, doi: 10.1145/3405962.3405974, *Biarritz, France.*

[6] **R. Lewis**, "A semantic calculus: Common sense reasoning for information systems," in *Proc. 11th Int. Conf. Information Management and Engineering (ICIME)*, Sep. 19–21, 2019, pp. 49–52, doi: 10.1145/3373744.3373755, London, U.K.

[7] **R. Lewis**, C. A. Mello, Y. Zhuang, M. K.-C. Yeh, Y. Yan, and D. Gopstein, "Rough sets: Visually discerning neurological functionality during thought processes," in *Proc. 24th Int. Symp. Methodologies for Intelligent Systems (ISMIS)*, Oct. 29–31, 2018, pp. 32–41, doi: 10.1007/978-3-030-01851-1_4, *Limassol, Cyprus.*

[8] **R. Lewis**, "ISR-Brain machine intelligence for unmanned aircraft systems," in *Proc. 2nd Int. Conf. Vision, Image and Signal Processing (ICVISP)*, Aug. 27–29, 2018, pp. 1–6, doi: 10.1145/3271553.3271594, Las Vegas, NV, USA.

[9] A. Kennedy and **R. Lewis**, "Optimization of neural network architecture for biomechanic classification tasks with electromyogram inputs," *Int. J. Artificial Intelligence & Applications*, vol. 7, no. 5, pp. 1–16, Sep. 2016, doi: 10.5121/ijaia.2016.7501.

[10] **R. Lewis**, "Neuroscience rough set approach for credit analysis of branchless banking," in *Proc. 21st Int. Symp. Methodologies for Intelligent Systems (ISMIS)*, Jun. 25–27, 2014, pp. 536–541, doi: 10.1007/978-3-319-08326-1_57, Roskilde, Denmark.

[11] **R. Lewis**, C. Mello, J. Ellenberger, and A. M. White, "Domain adaptation for pathologic oscillations," in *Proc. 14th Int. Conf. Rough Sets, Fuzzy Sets, Data Mining, and Granular Computing (RSFDGrC)*, Oct. 11–14, 2013, pp. 374–379, doi: 10.1007/978-3-642-41218-9_40, Halifax, NS, Canada

[12] **R. A. Lewis** and A. Waziri, "minedICE: A knowledge discovery platform for neurophysiological artificial intelligence," in *Proc. 19th Int. Symp. Methodologies for Intelligent Systems (ISMIS)*, Jun. 28–30, 2011, pp. 575–580, doi: 10.1007/978-3-642-21916-0_61, Warsaw, Poland.

SELECTED PROFESSIONAL CONTRIBUTION

[13] Pioneered iPhone programming with the first published book on the subject, followed by five additional Apress titles. The series achieved international distribution through more than 200 bookstores, with translations into multiple languages *(see here)*.