

Kennard Lavers  
Assistant Professor of Computer Science  
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## EDUCATION

*University of Central Florida*

Doctor of Philosophy (Ph.D.), Computer Science, 2008 – 2011

Grade: 3.73

*U.S. Air Force Institute of Technology*

MS, Computer Science, 2002 - 2004

Grade: 3.64

*The University of Texas at El Paso*

BS, Computer Science, 1998 - 2000

Grade: 3.64

Activities and Societies: Air Force ROTC

## PROFESSIONAL EXPERIENCE

*Assistant Professor of Computer Science at Sul Ross State University*

December 2014 - Present (1 year 11 months)

Performing research using game technology, teaching students, developing in-class and online courses. Spring 2015

Courses Taught

CS 1309 Logic Design 9 Students -

CS 2315 Data Structures 4 Students - CSAT 2315 Intro to Game

Programming 4 Students

CSAT 3360 User Interface Programming 8 Students

Fall 2015 Courses Taught

CS 1309 Logic Design--19 Students

CS 4320 Software Engineering--8 Students

CS 2315 Intro to Game Programming--8 Students

CS 2110 Graphics Programming--14 Students

Spring 2016 Courses Taught

CS 1320 Beginning Object Oriented Programming

CS 3320 Object Oriented Programming

CSAT 3130 Animation Programming

*Co-Owner/Co-Founder at Nerdicus Rex LLC*

November 2012 - Present (4 years)

Our LLC is a software development company with over 30,000 paid downloads with more than 30 game applications in Apple's App Store, Google Play, and the Amazon Marketplace. My role is lead developer and game designer. We focus on rapid development of smaller games (platformers, card, puzzle, word games, etc.). By rapid, we mean from less than a day to develop the application up to 4

months. We design games as groups of product families and always start by building initial frameworks and building the games on top of the frameworks.

*Assistant Professor of Computer Science at US Air Force*

August 2011 - Present (5 years 3 months)

Performed research on multi-agent learning, intelligent systems, integration of iOS based mobile devices with networks for control and cyber defense, integration of iOS based mobile devices for control of complex remote systems, and integration of cognitive modeling with intelligent interactive systems. Managed, advised, and mentored Masters and Ph.D. students in artificial intelligence and mobile device research for the Air Force and Department of Defense. Developed and instructed grad-level courses in computer science, software engineering, distributed systems, and computer data structures. Lead research for \$20K Air Force Space Command sponsored program in mobile sensing research to enhance Air Force situational awareness. Member of the AFIT Advanced Network Research Group. Provided cutting-edge capabilities to DoD, Air Force, & industry partners. Led \$20K Air Force Research network operations research--produced novel work in cognitive augmentation--results accepted to international journal. Technical authority on 15 program committees; served on international journal editorial review board. Orchestrated advanced Hadoop virtual network hosting innovative image-based localization student research effort. Expected "big data" solutions to lead the way to reduction in today's crippling war-time bandwidth limited environment. Advanced STEM curriculum with new course development & innovative research--advanced DOD S&T priorities. Initiated collaboration with AFRL in machine translation research effort working with lab to improve current tech. Stepping-stone to automatic and clear language translation for deployed warfighters in non-English speaking area. Led \$40K AFRL network ops research--produced novel work in cognitive augmentation--results accepted to international journal. Secured NRO support to study mobile devices for RPA control. Developed new course in device trust management--focused on reducing human error--provided direct support to AFRL initiative.

*Director of Information Technology at United States Air Force*

August 2007 - July 2009 (2 years)

Supervised three SNCOs and one civilian--led 15 military computer administrators and 12 contractors.

Managed \$4.5M in IT assets, \$270K yearly computer lifecycle replacement & \$60K annual IT infrastructure budgets. Coordinated computer, LAN and audio/visual equipment requirements for over 2,600 military & civilian personnel. Decision authority for all technology related acquisitions, installations, IT security & IT asset configuration control. Stood up wing's computer helpdesk--reduced manning requirement by four contractors...saved \$400K+ yearly. Installed secure LAN for Det 1, MCAS New River NC...provided critical access to parent unit. Built new MS SharePoint collaboration environment for 1,700 users...increased wing's info workflow. Earned Certified Information Systems Security Professional first time testing...lvl III IA exceeded DOD requirement. Migrated 25 classified network terminals to new regional domain...seamless transition & 0% downtime. Awarded #1 company grade officer on wing staff. Competed against 568 officers and won-Kirtland AFB CGO of the Qtr, 4th Qtr '07. Key player in 2007 Head Quarters AETC Operational Readiness Inspection preparation; boosted records

compliance 400%. The wing received "Excellent" overall. Implemented web camera system for flightline--boosted situational awareness...security provided for \$1.2 Billion in assets. Equipped 11 wing admin offices with high-speed document scanners. Received a stratification of #3 out of 88 officers in the wing.

*Chief, Information Security at United States Air Force, Research Lab*

April 2004 - July 2007 (3 years 4 months)

Responsible for information security for the Phillips Research Site (Air Force Research Lab in Albuquerque

NM) with 2500+ engineers, scientists and support personnel. Responsible for certifying and accrediting new computer based systems not on blanket Air Force certification plan. Responsible for reporting on leaked information and removing leaked data from AFRLs intranet and mail system.

*Project Manager, Software Engineering at US Air Force Research Lab*

April 2003 - April 2004 (1 year 1 month)

Designed and developed a new software application to manage Airmen resources including work, training, and Enlisted Performance Reports statuses & generated graphic reports for analysis. Additionally I managed the 15 person development team efforts from cradle to grave for a correspondence tracking application, foreign visitors survey program, and task tracking application.

A major accomplishment included spearheading the helpdesk process improvement team with recommendations reducing trouble calls by 3600 per year.

*Team Lead, Software Development Engineer at US Air Force Academy*

June 2000 - July 2002 (2 years 2 months)

Led technical team developing unique software for scan-tron optical scanner supporting cadet testing operation. I authored requirements/design documents and saved the Air Force about \$290K in contracting fees. Efforts led to a military commendation medal. Additionally I created a web application to enable telephone control officers to check their units cell phone usage. Finally, I developed report-generating software for tracking base-wide trunked radio system usage. This application was so successful that leadership submitted it for consideration to be used across the Air Force.

PUBLICATIONS

*Using Opponent Modeling to Adapt Team Play in American Football*

Elsevier April 1, 2014

Authors: Kennard Lavers, Ph.D., Gita Sukthankar

*A Real-Time Opponent Modeling System for Rush Football*

Twenty-Second International Joint Conference on Artificial Intelligence June 29, 2011

Authors: Kennard Lavers, Ph.D., Gita Sukthankar

*Improving Offensive Performance Through Opponent Modeling*

Proceedings of Proceedings of Artificial Intelligence for Interactive Digital Entertainment Conference (AIIDE) October 2009

Authors: Kennard Laviers, Ph.D., Gita Sukthankar, David W. Aha, Matthew Molineaux

*Opponent modeling and spatial similarity to retrieve and reuse superior plays*

Proceedings of the Workshop on Case-Based Reasoning for Computer Games, the International Conference on Case-Based Reasoning 2009

Authors: Kennard Laviers, Ph.D., Gita Sukthankar, David W. Aha, Matthew Molineaux, Matthew Klenk

*Identifying and Utilizing Subgroup Coordination Patterns in Team Adversarial Games*

Proc. of 9th Int. Conf. on Autonomous Agents and Multiagent Systems

Authors: Kennard Laviers, Ph.D., Gita Sukthankar

*Multi-Agent Plan Adaptation Using Coordination Patterns*

Proc. of 9th Int. Conf. on Autonomous Agents and Multiagent Systems August 1, 2010

Authors: Kennard Laviers, Ph.D., Gita Sukthankar

*Cognitive robot mapping with polylines and an absolute space representation*

Robotics and Automation, 2004. Proceedings. ICRA '04. 2004 IEEE International Conference on May 1, 2004 Authors: Kennard Laviers, Ph.D., Gilbert Peterson

*A Framework to Facilitate Cyber Defense Situational Awareness Modeled in an Emulated Virtual Machine Testbed*

Journal of Defense Modeling and Simulation July 1, 2015

Authors: Evan L Raulerson, Kenneth M Hopkinson, Kennard Laviers, Ph.D.

*The Use of Artificial Intelligence for Enhanced Network Defense*

September 11, 2012

Authors: Michael Knight, Kortney Raulston, Kennard Laviers, Ph.D., Kenneth Hopkinson

This research employed the use of a UCT algorithm to generate an automated "Best Plan" in response to a detected network attack.

OTHER AFFILIATIONS AND INVOLVEMENT

Member American Legion