

# Terry Griffin

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Computer Science  
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## WHO I AM

I am an accomplished computer science professor with a passion for teaching. I continue to learn new technologies and pass them on to my students and colleagues. Since 2001, I have designed and taught over eight new courses in 2D gaming, web development, mobile applications, and spatial applications. This breadth of knowledge has helped me continuously mentor students in research groups, teaching them additional skills above and beyond the classroom. As of late, I have found this to be the focus of my academic career, getting students involved in research no matter how basic or advanced. This does not always result in publications, but it allows my students to realize the possibilities and has encouraged many of them to continue on to graduate school.

## MAJOR ACHIEVEMENT

In addition to teaching, I have done outside consulting; most notably with the “Auditory Implant Initiative” (Aii), creating a cochlear implant database consisting of 5181 patients and over 40 facilities worldwide. I was the chief architect of the database working in concert with undergraduate students. The project started in 2014 and started entering patients in 2015. It is still collecting data and supporting research in the cochlear implant field. Aii owned the largest cochlear implant database in the world until “Cochlear” (the largest manufacturer of CI’s) recruited my skills into unifying a set of disparate data sets into a single unified cochlear implant database consisting of nearly 9000 patients and hundreds of thousands of tests giving medical professionals around the world access to a vast amount of previously inaccessible data.

## CURRENT RESEARCH GROUP

I changed the course of my previous machine learning (ml) group to explore using ml to train small Arduino run devices built by students. The devices use sensors to take in the surrounding environment and can react to specific stimuli. This has large range of uses from self-driving cars to smart home devices. Obviously, we are starting small, but there is a large student interest in this topic. Current group size is about 10 (Fall 2022) and I plan on proposing a course that would be based on the topics I learn building these devices.

## PREVIOUS RESEARCH GROUPS

- BBATS – Biometric Based Attendance Tracking System. This project allows an instructor to take attendance by snapping a photo of the students and uploading it to a trained machine learning model to identify each individual using facial recognition. This project was scheduled to do beta testing in Fall 2020.
- P-LOT – Parking Lot Occupancy Tracking. This project also uses a trained machine learning model as well as live surveillance video to determine in real time whether parking spaces are occupied or available. As a proof of concept, the group obtained over a 98 percent accuracy when predicting occupancy using a wall mounted camera on the third floor of Bolin science hall looking through a window. We are currently waiting on an actual set of cameras to be mounted in a test parking lot to show a viable real-world implementation.

Both projects together have involved over a dozen students in the areas of machine learning, mobile application development, web development, and database management.

## PROFESSIONAL EXPERIENCE

- 2016 – Present:** **Associate Professor – Computer Science, Midwestern State University, WF, TX.**
- 2007 – 2015:** **Asst Professor** - Computer Science, Midwestern State University, Wichita Falls, TX.
- 2015 - 2016:** **Chief Technology Officer** - Auditory Implant Initiative, Wichita Falls, TX.
- 2000 - 2007:** **Instructor** - Computer Science, Midwestern State University, Wichita Falls, TX.
- 1991 - 1996:** **Drill Instructor** - United States Air Force, Lackland AFB, San Antonio, TX.
- 1987 - 1990:** **Computer Programmer** - United States Air Force, Brooks AFB, San Antonio, TX.

## EDUCATION

- 2012: Ph.D. Computer Science & Engineering** - University of North Texas (2012), Denton Tx.  
 Advisor: Dr. Yan Huang  
 Dissertation: Location Based Services and Prediction
- 2000: M.S. in Computer Science** - Midwestern State University (2000), Wichita Falls, Tx.  
 Thesis: An Experiment with a Hardware Implementation of Edge Enhancement Filters
- 1997: B.A.** - Midwestern State University (1997), Wichita Falls, Tx.

## FUNDING

- 2016:** Faculty Research Grant, \$7000, to create an HPC (High Performance Computing) cluster for the computer science department. This grant was leveraged into a \$75,000 dollar funded project to create a research worthy HPC cluster.
- 2013:** Cochlear Implant Longitudinal Data Collection Study, \$45000 to fund the creation of a data collection web site and implementation of data analysis algorithms. Resulted in the largest cochlear implant patient database nationwide to date.
- 2012:** Faculty Research Grant, \$5000, to fund "iPhone App Development - (Continuation)" to create a university iPhone app.
- 2011:** Faculty Research Grant, \$5000, to fund "iPhone App Development" to create a university iPhone app.
- 2006:** Faculty Research Grant, \$5000, to fund "Automatic Trip Prediction - Using GPS based Devices"
- 2005:** Faculty Research Grant, \$2000, to fund "Building a Multimedia System using Micro Computer Components"  
  
Faculty Research Grant, \$4607, to fund "Applying Data Mining to Predict Ecological Information on Families of Beetles from the Chihuahuan Desert of West Texas"
- 2004:** Faculty Research Grant, \$5000, to fund "Computer Security Investigation - INtrusion Detection Investigation ANalysis System"

## RESEARCH

### \* with students

- \*2019** "Parking Lot Occupancy Tracking Through Image Processing." Proceedings of 34th International Confer 58 (2019) (Lopez, M., Griffin, T., Ellis, K., Enem, A. and Duhan, C)
- \*2018** "Pilot study on the use of data mining to identify cochlear implant candidates" Cochlear Implants International (2018) (J. Grisel, E.Schafer, A. Lam & T. Griffin)
- 2016:** "Creating a Framework for Data Sharing in Cochlear Implant Research" Cochlear Implants International (2016) (E. Schafer, J. Grisel, T. Griffin, et al.)
- 2016** "The Development and Implementation of HERMES: HIPAA-Secure, Encrypted, Research, Management and Evaluation Solution" Cochlear Implants International (2016) (E. Schafer, J. Grisel, T. Griffin, et al.)
- \*2015:** "Aii-Hermes: Hippa-secure Encrypted Research Management Evaluation Solution." Published software package. (2015), (T. Griffin, A. Lam, J. Miller, T. Osteen).
- \*2013:** "University iPhone app: start to finish development." J. Comput. Sci. Coll. 28, 4 (April 2013), 4-10. (T. Johnson, T. Griffin, E. Binnion, and C. Sawyer).

- 2012:** "GPS CaPPture: A System for GPS Trajectory Collection, Processing, and Destination Prediction." PhD diss., University of North Texas, 2012 (T. Griffin Y. Huang).
- 2011:** "Routing-based Map Matching for Extracting Routes from GPS Trajectories", In the 2nd International Conference on Computing for Geospatial Research & Applications, Washington, DC May 2011
- 2009:** "Querying Geospatial Data Streams in Secondo", In the 17th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACMGIS), Seattle, Washington November 2009
- "Intelligent System for Locating, Labeling, and Logging", In the Twenty Second International Conference on Industrial, Engineering & Other Applications of Applied Intelligent Systems IEA-AIE, Tainan, Taiwan, June 2009
- 2008:** "Simulation Of Disease Spread Based On the Sir Model", In the Proceedings of the 20th International Conference on Computer Applications in Industry and Engineering, Honolulu, Hawaii, November 2008
- 2006:** "Computerized Trip Classification of GPS Data", Proceedings of 3rd International Conference on Cybernetics and Information Technologies, Systems, and Applications (CITSA), Orlando, FL., July 2006
- 2005:** "A Decision Tree Based Classification Model to Automate Trip Purpose Derivation", In the Proceedings of the 18th International Conference on Computer Applications in Industry and Engineering, Honolulu, Hawaii, November, 2005
- 2003:** "Analysis Tool for Honeypot Systems", In the Proceedings of the 16th International Conference on Computer Applications in Industry and Engineering, Las Vegas, NV, November, 2003, pp.122-125
- 2003:** "Mobile Web Caching in a Hostile Environment", (with N.Passos, S. Mowva, and G. Kalbfleisch), In the Proceedings of the 17th AeroSense-Battlespace Digitization and Network-Centric Systems III, April, 2003, Orlando, FL.
- 2003:** "On-Line Instructional Testing in a Mobile Environment," (with N. Passos, C. Wuthrich, and G. Kalbfleisch), In the Proceedings of the Fourteenth Annual CCSC South Central Conference, in the Journal of Computing in Small Colleges, April 2003, Jackson, MS, pp. 23-29.
- 2002:** "An Experiment with Hardware Implementation of Edge Enhancement Filters," (with N. Passos), In the Proceedings of the Thirteenth Annual CCSC South Central Conference, in the Journal of Computing in Small Colleges, April 2002, Seguin, TX, pp. 24-31.
- 2001:** "A Study on the FPGA Implementation of Edge Detection Algorithms," (with N. Passos), In the Proceedings of the 14th International Conference on Computer Applications in Industry and Engineering, Las Vegas, NV, November, 2001.

## PRESENTATIONS:


- 2020:** Faculty Forum: Artificial Intelligence & Machine Learning: The Undergraduate Experience. Wichita Falls, Tx
- 2018** The Power and Potential of Big Data in Cochlear Implants, Washington, DC
- 2015** Development of a Community-Based Clinical Registry for Patients with Cochlear Implants, Washington, DC
- 2011** Routing-based Map Matching for Extracting Routes from GPS Trajectories, Washington, DC
- 2005** A Decision Tree Based Classification Model to Automate Trip Purpose Derivation, Honolulu HI
- 2003** Analysis Tool for Honeypot Systems, Las Vegas, NV
- 2002** An Experiment with Hardware Implementation of Edge Enhancement Filters, Seguin TX
- 2001** A Study on the FPGA Implementation of Edge Detection Algorithms, Las Vegas, NV














## AWARDS

**I.D.E.A WF 2015** winner with Dr. Jed Grisel for starting the “Auditory Implant Initiative” a non-profit organization for collecting and analyzing information on cochlear implant patients worldwide. This database has the largest collection of cochlear implant data in the world (as of February 2020).

## DEV SKILLS

## LEVEL

- C/C++ 
- Python 
- Php 
- Mysql 
- Unix Server Administration 
- L.A.M.P development 
- SQL / NOSQL / Key Store 

- GIS programming and Spatial Data 
- M.E.A.N development 
- Javascript 
- MongoDB 
- Machine Learning - Tensor Flow 
- Machine Learning - Keras 
- Redis 
- iOS – App development 
- Android- App development 
- FireBase 
- CouchDB 
- CouchBase 
- Cassandra 

## COURSES TAUGHT

- **Undergraduate**
  - CMPS 1013 - Computer Concepts and Applications (classroom and online)
  - CMPS 1044 - Computer Science I
  - CMPS 1063 - Data Structures and ADT
  - CMPS 2143 - Object-Oriented Programming
  - CMPS 3013 - Advanced Structures and Algorithms
  - CMPS 4103 - Introduction to Operating Systems
  - CMPS 4123 - Database Managements Systems
  
  - CMPS 4443 - Topics in Platform-Based Development
    - Internet Programming
    - iOS Swift Programming
    - Mobile 2D Gaming
    - Mobile Applications
  - CMPS 4553 – Spatial Data Structures
  - CMPS 4663 - Topics in Computer and Networking Security
    - Cryptography
  - CMPS 4883 - Topics in Computer Science
    - Spatial Data Mining
    - Javascript UI/UX Client Side Programming
    - Mobile Web Programming
    - Programming Techniques

- CMPS 4993 - Independent Study
- **Graduate**
  - CMPS 5133 - Advanced Computer Architecture
  - CMPS 5143 - Advanced Operating Systems
  - CMPS 5303 - Advanced Database Management Systems
  - CMPS 5363 - Graduate Topics in Computer and Networking Security
    - Cryptography
  - CMPS 5373 - Graduate Topics in Platform-Based Development
    - Mobile Swift Development
    - Client Side Web Development
  - CMPS 5443 - Advanced Topics in Computer Science
    - Big Data
    - Javascript UI/UX Client Side Programming
    - Spatial Databases
    - Mobile Web Programming
  - CMPS 6901 - Independent Graduate Study in Computer Science

## **COMMITTEES**

- Budget Oversight Committee (2020)
- CIO Search Committee (Co-Chair) (2020)
- 3 Faculty Search Committees (2018-2020)
- University Tenure and Promotion Committee (2019 – present)
- University Data Security Committee (2019 – present)
- University Strategic Planning Committee (2019 – present)
- Chief Information Officer Search Committee (2016)
- Strategic Planning Committee (2016)
- Faculty Search Committee (2015)
- Dean Search Committee (2015)
- MSU Ad-Hoc Academic Budget committee
- Midwestern State University Computer Security Committee
- MSU Website Committee
- Computer Science Undergraduate Curriculum Committee
- North Texas Area Student Conference – Steering Committee
- CS Rank & Tenure Handbook Review Committee
- Outstanding Student committee
- Dean Search Committee (2012)
- Provost Search Committee (2012)
- Faculty Senate (2011-2015)
- Ad-Hoc Budget Committee (2011)
- University Web Portal Committee (2012 - Present)
- University Web Site Committee (2010 – Present)
- University Network Security Committee (2007 - Present)
- Academic Re-Admissions Committee (2012 - 2020)
- Title IX Investigator (2018 – Present)

## **HONORS**

- Midwestern State University - Computer Science Faculty of the Year 2009
- Midwestern State University - Computer Science Faculty of the Year 2006
- Midwestern State University - Computer Science Faculty of the Year 2004

## **ACADEMIC HONORS**

- Upsilon Pi Epsilon, Honor Society in Computer Science
- Psi Chi, Honor Society in Psychology

## **SERVICE**

- Head Robotics Judge - Frank Phillips College in Borger Tx (1<sup>st</sup> Feb 2020)
- Volunteer Robotics Judge for middle school and high school (2018- present):
  - UIL - TCEA (Texas Computer Education Association)
  - FIRST Tech Challenge
- Advisor to Silent "Stang" a student organization for the hearing impaired (2019 - present)
- Consulting for non-profit organization: "Auditory Implant Initiative" (2014-present)
- Advisor / coach for the MSU rugby club (2003 - 2018)
- Women's Basketball Volunteer strength coach (2000 - 2005)
- Wichita Falls Museum computer consultant (2000 - 2003)
- First Night Falls Volunteer Web designer / Technology consultant (2007 - 2009)
- Faith Mission Volunteer (2012 - Present)
- Hotter n Hell Volunteer (2008 - 2014) (Rode in the race 2015-2106)
- Armed Forces Veterans Organization (20011 - Present)

## **SOFTWARE**

- Auditory Implant Initiative - Cochlear Implant Database
- Created custom software for Biology department to do comparative analysis of fluorescence in microscopic images.
- Data collection framework to assist in the collection and processing of GPS data.
- Developed the software for MSU Card Services and Wells Fargo bank to allow the creation and integration of student id / bank cards.

## **LEARNING MANAGEMENT SYSTEMS EXPERIENCE**

- Blackboard
- WebCT
- Desire2Learn
- Moodle