2016-17 was a year of planning for changes. We are in the middle of planning for a new building, as well as a merger with the Information Networking and Telecommunications and Management Information Systems programs. We also proposed a new program, Cyber Security Operations, which should be offered next fall. Just as expecting parents are excited (and a little nervous) for the arrival of their new baby, we are all excited (and also a little nervous) about these changes. We are working with wonderful people as we make these changes, and we cannot wait to move into to our new building! Read more about these changes on page 9.

Through the generosity of numerous CSIT friends and alumni, the CSIT Alumni & Friends Scholarship in Honor of Professor-Emeriti Marilyn Jussel has now reached its endowment level. Thank you to everyone who made this possible. We appreciate any support to the CSIT Alumni & Friends Scholarship to strengthen the scholarship. We are fortunate to be able to provide seven students with scholarships, as shown on page 7. The family of Robert Rathe established a scholarship in his name for Math/CS students. Robert was a 1980 graduate of Kearney State College who worked for Northrup Grumman and NASA, on the Hubble telescope, among other things. He passed away in 2011. We want to thank the Rathe family for their generosity. The family of Kenny Sogar is establishing a scholarship fund in his name for IT students. Kenny was the UNK College of Natural and Social Sciences Director of IT for the past several years. Kenny was a joy to work with. He always had a smile on his face, and a spring in his step. He called Kearney and UNK “Heaven on Earth”. He was an awesome teacher and mentor for the IT students who worked for him. We will work hard to endow this scholarship in his honor.

CSIT students and faculty participated in many fun activities including senior projects shown on pages 2-3; Midwest Instructional Computing Symposium robotics competitions shown on page 4; outreach activities shown on page 5; hacking competitions and business tours shown page 8; and various other activities as shown on page 11.

As always, I hope you enjoy reading about the CSIT events and happenings.

Sherri Harms, CSIT Chair
A thrilling virtual reality game, a wireless keyboard that allows users to control any device by typing in the air, research on email phishing success rates, and designs for a NASA robot that will collect materials in space.

UNK CSIT seniors are challenged with the task of creating projects based on their interests and knowledge they gained in their CSIT classes over four years. The result was innovative and creative inventions, research and ideas. Students presented their final projects to their classmates, peers, faculty, and local business professionals during finals week. “The project allows students to apply what they’ve learned over four years,” said Sherri Harms, professor and chair of the CSIT Department. “They get to choose their own project, which increases student creativity.”

Spencer Gowin of Scottsbluff created an accelerometer keyboard that communicates through Bluetooth with an Arduino receiver. The receiver made it easy to use a dynamic keyboard that adapts to programming language specific coding. For example, it allows the user to press one button instead of typing the <html></html> tags when using the HTML specific coding keyboard that he created.

Rachel Feddersen of Kearney is involved in BlueGold Brigade. She worked closely with the UNK Alumni Association to create a mobile app that features the 10 UNK traditions that people can complete.

Sam Middleton, Ian Lim, Ben Wagner and Gerardo Quintero created a multi-player VR game. They had created VR games before, but they were excited to use the HTC Vive, a more advanced technology. Together the team imagined, designed, and created a thrilling maze chase game where multiple non-VR players sought to find the VR “ghost” player, while the VR player tried to exit the maze. The VR player is only visible in the direct focus of a non-VR player’s flashlight. The VR player can move through walls, while the non-VR players cannot.

“This was also the first multi-player game I’ve worked on, so I learned a lot about balancing games and making sure every player has a fair chance to win,” Middleton said.

Dan Harshbarger created a stock market analyzer using temporal data mining applied to financial data downloaded from finwiz.com.

“The final project shows that you can be creative with technology,” Harms said. “By giving students the opportunity to design and implement their own project, they are able to demonstrate creativity, project management, scoping, design, implementation and presentation.”

The remaining senior projects are shown on page 3.
 Sean Stahly and Keathan Fertig conducted an email Phishing experiment. This research project tested phishing attack success rates. They developed phishing tools to create legitimate-looking emails using Python and YAML. Sean presented this research at the MICS 2017 conference.

Spencer Miller conducted a Kali Linux security experiment using a PFsense router, Windows server, and built-in tools to vulnerability scan and exploit machines.

Jake Oertle created a Kearney High sports website that includes rosters, schedules, records, coaches, featured news, a hall of fame page, and a facilities page. He helps coach KHS wrestling.

Weu Zhou created a Google Cloud Platform web app designed for UNK International Student Services to make agendas & minutes and send emails.

Chase Miles and Logan Oliver created an active directory domain using Windows Server 2012, with virtual machines; users; group policies; distinct organizational units; and security group configurations.

Eric Jensen created a load balancing library implemented in a Twitch.tv chat bot. It balances arbitrary work across multiple computers or processors.

Josh Knadjl created Odd Journey Home, a 2D side-scrolling platformer game, developed using the GDevelop game engine, Java and HTML5. It had various levels and scenes.

Josh Wilson created a robotic auger to compete at the NASA Robotic Mining Competition, which simulates mining and returning lunar or Mars materials.

Kyle Hasenkamp and James Chandler implemented Chef Configuration Management. Chef is "infrastructure as (Ruby) code" with recipes (scripts) and cookbooks (collections of recipes) that automate software installation & configuration for Linux.

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The UNK CSIT Artificial Intelligence class once again held its 15th annual robotics competition and competed at the regional Midwest Instructional Computing Symposium (MICS) robotics competition in La Crosse, WI in April 2017. Student teams designed, built, and programmed robots to autonomously play min-golf, on a 3-hole miniature golf course. The robots had to avoid obstacles along the way. Students used advanced programming techniques and designed their robots to respond to various sensors.

The teams shown below competed in this event. Two teams of students also competed in the MICS programming competition, Eduardo Salas, Emma Reichle, Miguel Verdugo; and Matt Laucomer, Connor Schlautman and Justin Joyce.
The CSIT Advisory Council held its annual meeting on April 10, 2017, and held phone conferences in September 2016 and March 2017. The Council met with Dustin Newton, UNK Admission Director, to discuss recruiting and with the UNK Administration to discuss the Otto Olsen replacement and CSIT space needs as well as the proposed departmental merger with the MIS and INT programs. They also met with CSIT students to discuss marketing and curricular ideas, and to hear about class projects.

The 2016-2017 Advisory Council members are: Pete Evans, 2002 alum, Douglas-Omaha Technology Commission; Rob Harbols, Buckle, Inc.; Scott Weitzel, Sheridan Ross; Ali Oran, 1990 alum, and Director Applications Development, Farm Credit Services; Matt Dwyer, chair, UNL CSE. New members are Kevin Woolley, 2003 alum, Pacific Gas & Electric, and Jay Powell, 2004 alum, MathWorks. Student members were Kyle Hasenkamp (IT) and Sean Stahly (CS). Faculty members were Sherri Harms, Shahram Alavi, John Hastings, and Matt Miller.

Jim Allen, Berkley Technology Services and Jeff Blackmon, Strategic Continuity Solutions received 2017 CSIT Friend of the Department awards for service on the Council from 2007 through 2016.

In June, CSIT faculty and students held a second annual cyber security camp for middle and high school students. The camp was organized by Dr. Matt Miller. The campers learned about cyber security, basic programming, Linux, App Inventor, setting up servers, password cracking, robotics, reverse engineering, and more. They all received Raspberry Pi’s, which they used at camp and then took home with them. The Kearney Hub published a story on last year’s camp, entitled Students learn programming, cyber security at Coding Camp.

In March, CSIT held a Creating Mobile Apps workshop for girl scouts. The girl scouts were also introduced to the VR games that CSIT students created, robotics, and CS/IT careers with an CSIT alumni panel.

This spring, CSIT faculty and students, along with Kearney-area IT professionals once again held CoderDojos. The Dojos will start again in the fall and continue through the next year—all kids are welcome.
CSIT honored three students at the Spring 2017 Honors Convocation.

Rachel Feddersen, graduates summa cum laude in July 2017 with an Applied CS major and Spanish minor. She is a member of Alpha Omicron Pi, Blue Gold Brigade, and Christian Student Fellowship. She helped with various CSIT events including Girl Scout app development and CoderDojos. She taught the CSIT 130 lab in fall 2016 and represented UNK at the MICS 2016 robotics competition and the 2013 MINKWiC. Rachel studied abroad in the Czech Republic and Costa Rica. Rachel works at the Buckle as a developer.

Sean Stahly graduated Summa Cum Laude with a CS Comprehensive major and a Math minor. He has been involved with the Honors Program, ACM, and the UNK Cyber Security Club, and taught a CSIT 130 lab in fall 2016. He represented UNK at several hackathons and programming, robotics, and cybersecurity competitions. Sean conducted two research projects, one on quadcopters and another on phishing. These were presented at MICS in 2016 and 2017. Sean works at the Buckle as an iOS Developer.

Benjamin Wagner graduated Cum Laude with a major in Applied CS and a minor in Geographic Information Systems (GIS). Ben is part of the Honors Program and Mortar Board. He also taught the CSIT 130 lab in fall 2016. He assisted with the ITX16 conference, and represented UNK at the MICS 2015 robotics competition. Ben was heavily involved in the Newman Center and was a member of Student Government. Ben works at Xpanxion as a developer.
Brooke Scott of Trenton, NE, received the $6000 Buckle Excellence Scholarship in 2017. She is the daughter of Beth and Craig Scott. In high school, Brooke was active with band, choir, play, art, web design, track, volleyball, basketball and more. Brooke was attracted to UNK CSIT because “it is large enough that there will be plenty of opportunities, but small enough that I will get to work with my professors more, one-on-one.”

Nate Kiolbasa and Bricyn Jameson were selected for the $3000 Buckle Excellence Scholarships. Christian Schleif (not shown), received the $3,000 sophomore-level Buckle Scholarship. Bricyn is the son of Brad and Pam Jameson from Kenesaw. Nate’s parents are Ann Kiolbasa and Steve Kiolbasa from Hastings. Christian is the son of Tom and Kristi Schleif of Osceola. Nate summarized, “having the chance to lead my own project, with the help of the faculty, [which] will allow me to apply my creativity in an entirely new way really sets UNK apart.”

Angel Ruiz is the recipient of the 2017 Northwestern Energy Community Works Scholarship. He is a junior IT major from Kearney, and originally from Madison, NE. He is the son of Rosa & Bolivar Salmeron. He currently serves as the CSIT student system administrator. He manages the lab computers and servers.

Stephanie Slayden of Emporia, KS received the first endowed Robert Rathe Memorial Scholarship for Math/CSIT students. Stephanie is the daughter of James and Gina Slayden. She is a junior completing double CS and Math Comprehensive major programs. She is also currently serving as the Math/CS tutor and a lab instructor for the CSIT 130 Introduction to Computer Science lab. She is the first CS student recipient of the Rathe scholarship.

Drew Fritson of Kearney received the first CSIT friends and alumni scholarship in honor of Marilyn Jussel. His parents are Krista and Randy Fritson. Drew wants to develop software for psychological purposes. Tax deductible contributions to this scholarship can be made at nufoundation.org.
CSIT students competed in several competitions, including Global Hackathon in St. Louis in October 2016, CCDC (Collegiate Cyber Defense Competition) in March 2017 (shown below), and the programming and robotics competitions at MICS in April. Students visited CSIT alum Eric Harms, at Backflip and other gaming companies in Boulder, CO in February (shown on the left); and to InfoTech in Omaha in March. ACM also held a disinfection day in April.

CSIT RESEARCH, INDEPENDENT PROJECTS & INTERNSHIPS

- **Eduardo Salas**, Summer 2016, First National Bank, Omaha
- **Preston Power**, Summer 2016, ReSource Pro, Qingdao, China
- **Sam Middleton**, Fall 2016, Blackbrick Software, Kearney, NE
- **Dan Harshbarger**, Fall 2016, Machine Learning, Dr. Harms
- **Spencer Gowin**, Fall 2016, Smart Lock Box, Dr. Miller
- **James Chandler**, Spring 2017, Cloud Databases, Dr. Harms
- **Ben Wagner**, Spring 2017, Automating GIS, Dr. Harms
- **Ian Lim**, Spring 2017, VR games for Oculus Rift, Dr. Harms
- **Sydney Stadler**, Summer 2017, Hollman Media, Kearney, NE

- **Sean Stahly & Dr. Miller**, Phishing for Users, MICS, La Crosse, WI, April 2017
- **Sherri Harms**, Tackling CS education in K-12: Implementing a Google CS4HS Grant Program in a Rural Underserved Area, MICS, La Crosse, WI, April 2017
The new applied-STEM building replacing the Otto C. Olsen building at University of Nebraska at Kearney will create cohesiveness, connectedness and continuity among faculty and students.

In January, University of Nebraska Board of Regents approved plans to replace Otto Olsen with a new $30 million building on UNK’s west campus.

“It’s going to be an exciting venture,” said Charlie Bicak, senior vice chancellor for Academic and Student Affairs. “This project is probably the most complex in the history of the University of Nebraska system. It’s certainly not the largest, and it’s certainly not the most expensive, but it’s complex in terms of impact on all four academic colleges.”

The Otto Olsen replacement building will feature state-of-the-art labs for virtual design/construction simulation, mechanical products, hydraulics/pneumatics, computer sciences, applied sciences, physics, engineering and research, in addition to a full-motion simulator and ITEC Testing Center.

The 80,000-square-foot building is projected to be open by October 2019. Otto Olsen was built in 1955 and has been on a capital construction list for at least two decades.

Most of the programs housed today in Otto Olsen will move to the new building: industrial technology, interior design, aviation, and CSIT. The Math, and Physics/astronomy and engineering programs also are relocating to the new facility, allowing for an applied “science, technology, engineering and math” – or STEM – focus.

“Having basic functionality in classrooms and having the space to do innovative and creative projects is going to be critical for us,” said Sherri Harms, chair of CSIT.

Creating classrooms and labs that promote collaboration will allow students to work on innovative and creative projects, she said. Summarized from UNK news release, March 7, 2017 by S. Giboney.

In an effort to create synergy in technology course offerings, CSIT is currently undergoing a merger with Management Information Systems (MIS) and Information Networking and Telecommunication (INT), which are in the College of Business and Technology (CBT). The newly-formed department will be in CBT in the new applied-STEM building.

“The combination of CSIT, MIS and INT provides a coherent depiction of technology and technology-related coursework, degrees and professional opportunities,” Bicak said. “Someone from the outside looking in today is probably a little confused about technology and who’s doing what.”

Bicak said interest among students continues to grow in science, technology, engineering and math, as does the demand in the workforce in those areas.

“It’s something our students are already excited about,” said Harms.

CSIT student Preston Power’s involvement in an international internship was a happy accident. “But after the interview with ReSource Pro, they were 100% confident they could stop their search because I was their guy”, said Power. He has now been with ReSource Pro for over a year, in Qingdao, China and remotely from Kearney. Summarized from Kearney Hub, UNK Today 2016: Personalities, August 2016 by Andrew Hansen.

First as a math student, then beginning work as a computer programmer and eventually becoming assistant vice chancellor of information technology, Deb Schroeder has been a student or employee at the University of Nebraska at Kearney for 45 years.

“This is where my heart is,” Schroeder said. “These are the students I care about. I had a good education here. There is great faculty here. I’m excited to come to work every day and be part of what this institution means to people. Summarized from UNK news release, March 17, 2017 by S. Giboney.
**2016-2017 CSIT GRADUATES & ALUMNI NEWS**

**FALL 2016**

<table>
<thead>
<tr>
<th>Name</th>
<th>Major</th>
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<tbody>
<tr>
<td>Keathan Fertig</td>
<td>Computer Science Comprehensive</td>
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<tr>
<td>Chase Miles</td>
<td>Information Technology</td>
</tr>
<tr>
<td>Zach Wider</td>
<td>Applied Computer Science</td>
</tr>
<tr>
<td>Dan Harshbarger</td>
<td>Applied Computer Science</td>
</tr>
<tr>
<td>Jacob Dertle</td>
<td>Information Technology</td>
</tr>
<tr>
<td>Josh Knajdl</td>
<td>Information Technology</td>
</tr>
<tr>
<td>Logan Oliver</td>
<td>Information Technology</td>
</tr>
<tr>
<td>Skylar Tatreau</td>
<td>Multi Media/ IT Minor</td>
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**SPRING 2017**

<table>
<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
<td>James Chandler</td>
<td>Information Technology</td>
</tr>
<tr>
<td>Spencer Gowin</td>
<td>Information Technology</td>
</tr>
<tr>
<td>Kyle Hasenkamp</td>
<td>Information Technology</td>
</tr>
<tr>
<td>Ian Lim</td>
<td>Applied Computer Science</td>
</tr>
<tr>
<td>Derek McNeil</td>
<td>Applied Computer Science</td>
</tr>
<tr>
<td>Sean Stahly</td>
<td>Computer Science Comprehensive</td>
</tr>
<tr>
<td>Ben Wagner</td>
<td>Applied Computer Science</td>
</tr>
<tr>
<td>Wei Zhou</td>
<td>Applied Computer Science</td>
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<tr>
<td>Spencer Miller</td>
<td>Information Technology</td>
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**SUMMER 2017**

<table>
<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Rachel Feddersen</td>
<td>Applied Computer Science</td>
</tr>
<tr>
<td>Samantha Sorge</td>
<td>Information Technology</td>
</tr>
<tr>
<td>Abi Curtis</td>
<td>Computer Science Comprehensive</td>
</tr>
</tbody>
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**2016-2017 graduates Skylar Tatreau, Zach Widger, Derek McNeil, and Samantha Sorge. Other graduates are shown in the picture on the left or on pages 2-3.**
Dr. Sherri Harms and Sandy Vlasnik from UNO awarding NCWIT Aspirations in Computing Awards to high school girls in Nebraska

CSIT students and Dr. Miller at one of the monthly board game nights

Kyle Halsted, Bryce Newton, Gerardo Quintero, Josh Jacobson, Sam Middleton with their chalk Finite Automata

Brian Kuntz, Intellicom Inc. meeting with CSIT students at the IT Breakfast

Will Jones & Jay Chaudhari working on their AI robot

Dr. Harms with code.org founder Hadi Partovi

Forrest King and Matt Brunkhorst demonstrate their VR software engineering project

Dr. Sherri Harms and Sandy Vlasnik from UNO awarding NCWIT Aspirations in Computing Awards to high school girls in Nebraska

Justin Joyce, Matt Lacomer & Connor Schlautman at the MICS programming competition

2016-17 CSIT ACTIVITIES
Phynd proves the model for “rural sourcing” startups. Phynd, located in Kearney, NE provides a cloud-based, highly secure platform to unify healthcare provider management. Phynd has forged a good relationship with UNK. “We have two ongoing internships with CSIT students,” founder Tom White said. “We hire upon graduation, it’s a rolling internship.” Rod Armstrong, Silicon Prairie News, 11/7/2016.

Working in (Virtual Reality). “When you code something, see it run and have other people play it and see their satisfaction. it’s exciting.” said Ian Lim, CSIT student and VR developer. Andrew Hanson, Kearney Hub, UNK Today 2016: Personalities, 8/18/2016.

Inventing the Future with CSIT. “What does a 2015 CS graduate and a Professor of Computer Science, Emeritus at Princeton University have in common?” Michelle Widger, UNK Today Alumni Magazine, Fall 2016.

Student Discovers Entrepreneurship Attainable for the Passionate. “Winning an entrepreneurship contest was never something I thought I’d do. Coming to UNK, I didn’t know about running a business, let alone becoming an entrepreneur. I came with a passion for computer science and a desire to express my creativity through software development”. Sam Middleton, Open for Business, 6/2016.

Hot Majors to Pursue, Erika Pritchard, Kearney Hub, UNK Today 2016: Campus & Community, 8/20/2016.

CSIT ALUMNI GATHERING

Ways to Support CSIT
- Provide scholarships through the CSIT Alumni & Friends Scholarship
- Enable CSIT research projects through the CSIT Fund
- See the University of Nebraska Foundation website for more information: nufoundation.org

Join the exclusive “UNK CSIT Alumni” LinkedIn Group: Post discussions and job announcements. Connect with other CSIT alums. All members are verified CSIT alums.

Give a presentation on-campus: Students need to hear from successful alumni. Sharing your story can make a difference.

Hire CSIT interns or new employees: Inform Dr. Harms of your hiring needs and she will post it on the CSIT job website and send an announcement to current students.

Attend the Fall and/or Spring Career Fairs to meet students: Sign up to represent your company at the career fair

Share your success story in a video clip: Inform Dr. Harms if you are willing to be featured in this video of CSIT alums.

Like the “UNK CSIT” Facebook group

Check out the CSIT website cs.unk.edu

Complete the alumni survey available at goo.gl/qN3Adw with a password of “golopers”. We are interested in hearing about the events in your life and any change of address.

This newsletter is produced and distributed by the CSIT Department at UNK. Please report any errors to the department. Dr. Sherri Harms wrote and Carol Koch edited the newsletter. The front cover features the CSIT Senior Seminar class at the top, and CSIT student Rachel Feddersen leading faculty into the summer 2017 graduation. Above, CSIT fall 2016 graduates Zach Widger and Dan Hanshburger are shown in the lower left.