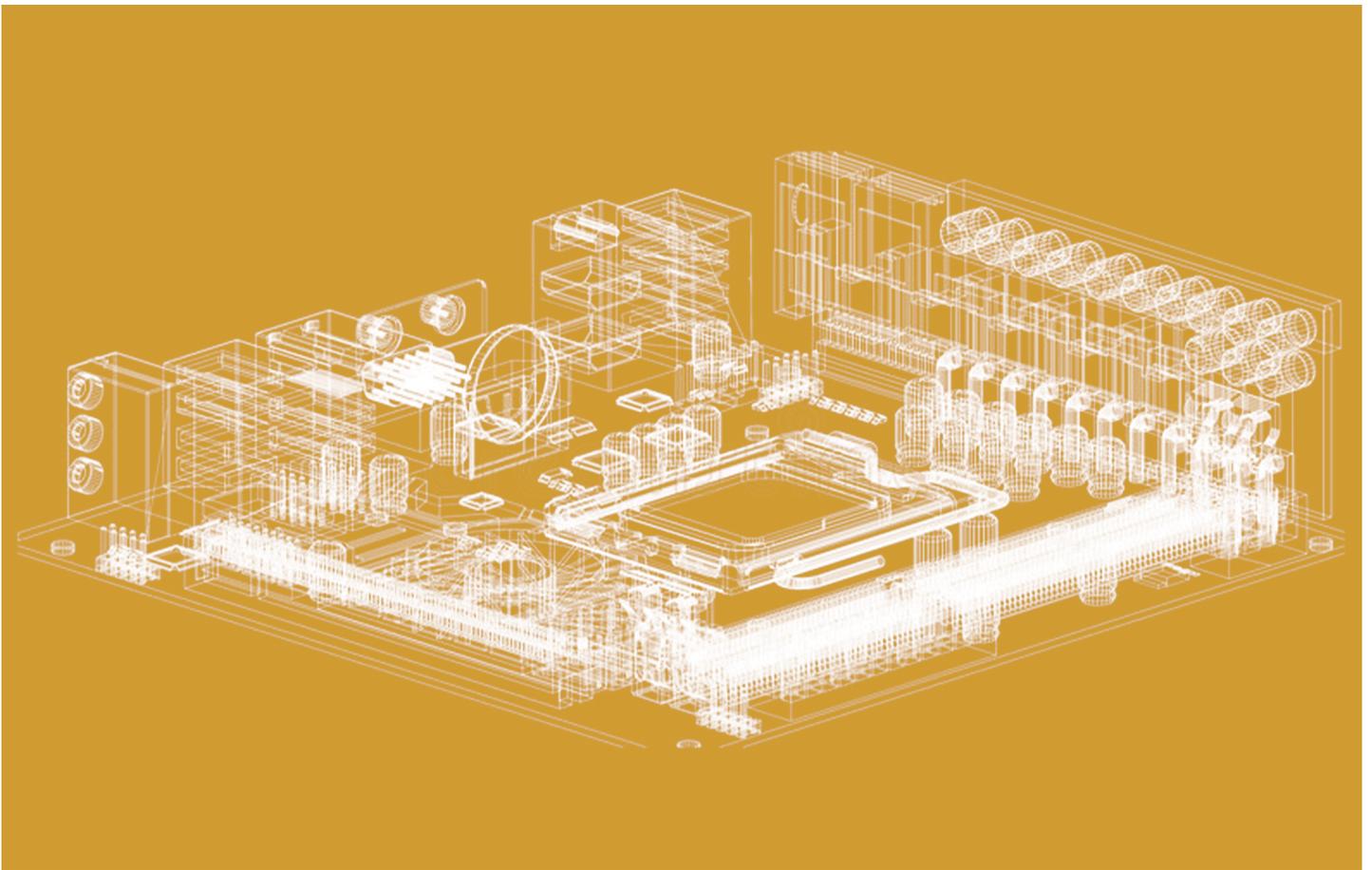


# ITS ANNUAL REPORT

FY 2018 - 2019



# A MESSAGE FROM THE VICE PRESIDENT

I am pleased to be able to share with you the 2018-2019 year-end ITS: report. Within these pages, you will find some wonderful commentary that helps tell the story of the women and men in technology at Colorado College. The amazing achievements throughout this narrative show the range of solutions that our team provides to the students, faculty, and staff at CC. The women and men of ITS: deserve the credit for the great work that has been accomplished, it is a team dedicated to making our campus a great place to live and work. Thank you in advance for taking the time to see what great things have been accomplished over this past year.

**BRIAN YOUNG**

VICE PRESIDENT AND CHIEF TECHNOLOGY OFFICER



DEBUZZ CAPS



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# PLUNGED HEAD TO CC

Throughout this fiscal year, ITS remained committed to the larger goal of “**Building on the Block Plan.**” The department focused on **FOUR** unique strategies to ensure a transformative student experience as well as providing a cutting-edge workplace environment. We are confident that through our sustained efforts, CC’s best days are ahead.



## LEARNING NETWORK

Improved infrastructure for a better student experience and to allow for CC Strategic Plan implementation



## CLOUD AND MOBILE

Development and integrations to increase mobile services on the CC Mobile App Platform



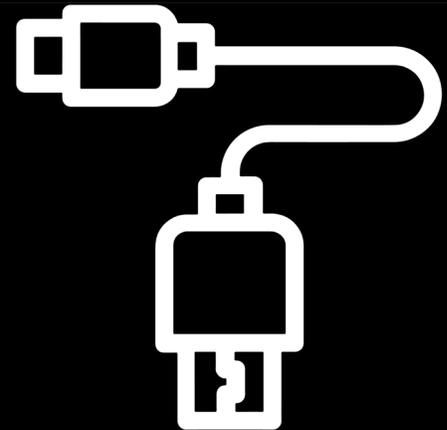
## PEOPLE

Focus on building a positive and vision-driven culture



## PROFESSIONAL DEVELOPMENT

Participation in campus-wide development and exemplify individual leadership



## BLOCK PLAN

Provide additional support to realize the potential for our ground-breaking block plan



## SUMMER AND HALF BLOCK

Build nationally recognized summer and half block programs



## INNOVATION

Create an Innovation institute



## DISTINCTIVE PLACE

Enhance our distinctive place of learning – our campus – to support our engaged, globally-connected academic community and embody our regional and historical identity



## WORKPLACE EXCELLENCE

Focus on workplace excellence to foster an organization that is innovative and dynamic as the CC academic experience; connect faculty and staff to the mission of the college and each other, understanding CC’s commitment to inclusion, wellness, and professional development



## CONNECT THE CC EXPERIENCE

Help students to build reconnections across diverse communities, disciplines, and academic and co-curricular experiences, and to link their education to their future aspirations



## COLORADO SPRINGS FINE ARTS CENTER

Contribute to the college’s mission while expanding learning opportunities, arts programming, and cultural resources for the greater Colorado Springs community



## LEARNING BLOCK

ITS invested **\$3.8 million** this fiscal year towards infrastructure to guarantee a better student experience and assist with the **Block Plan**



**Internet bandwidth was increased by 33%**, followed by new interface designs and more intuitive naming of WiFi networks



There was a successful test of **5 new outdoor access points** to serve over 1500 devices and installation of **40 additional outdoor wireless access points**



**60TB of new storage** was added and there was a move to **full redundancy** between Armstrong and Barnes Datacenters for the most critical virtual servers



The **addition of a new server** made it easier to manage and **store large art scanning projects** for the Art Department (VRC) to manage



Began architecture and design for **“AX”**, a next-generation deployment of **campus wired network and wireless**



Modifications and error checks were made to **UMRA** (User Management Resource Administrator) to **correct account creation issues** and establish a more efficient process



Tutt Library Circulation check-out devices (IOS and Mac) were successfully managed and provided **quick wipes and rebuilds** between users



A new enterprise backup system, **Actifio**, was implemented to **rapidly access institutional data** and further insight and innovation on campus



Created configuration for classroom iPad carts with **60+ devices in use over two carts**, allowing for **fast turnaround between blocks**, and real-time adjustment of whole sets of devices



A new WSUS server was built so **Windows could update properly** and the Microsoft cloud-based **Azure** directory was updated to apply conditional access that eliminates legacy authentication methods



A copy of the college's data is sent offsite to **Google** (Virginia) and **UWYO** (Wyoming) in addition to being stored locally

## COMMUNICATIONS UPGRADE



ITS learned how to support the old FAC phone system in-house and there was a migration to a state-of-the-art unified communications system that allowed CC to host **964 Webex meetings** with an average of about **50,000 minutes** per month



CC Staff hosted **135 unique meetings** in South Korea, Netherlands, US, United Arab Emirates, Australia, Canada, UK, Singapore, Niue, and Japan with **1,870 unique meeting participants**

# PBX REMOVED

with Infrastructure Manager, David Ziemba

**Q: What am I looking at?**

A: This is the phone system that held over 2000 internal phone lines, and connected callers from around the world with Colorado College staff and students. Each "line card" (you can see in Figure 2) holds/controls 16 phone lines.

**Q: That looks like a \_mess\_ of cable, right?**

A: This is the result of 40+ years of telecom cabling. We've found when services were upgraded, old cabling was left in place. We've even found the older PBX before the Nortel was put in service, and it was \_still\_ powered on. We are removing all old service/cabling that appears to be dead, but also working with CL/L3 to clean up their act as well (the turquoise and purple boards in Figure 3). We have located lines, and equipment for old businesses that leased space from the college like Globe Travel, Follett, Barnes and Noble, etc) that has never been removed.



**Q: How old is this?**

A: Unknown, we might have to have utilize carbon dating. I'm sure it could be a popular student project.

**Q: Are phones still working with all of this cut cable?**

A: Yes. New phones are ported to use the data network. Phones that might experience problems are analog phones that still use most of the copper cabling on the other side of the telecom room in Loomis. We've had great care to cut out the old cabling with a massive 48" cable shear cutter (that I have bruising from).

**Q: Where does the old cabling go?**

A: The cable that routed into the PBX is heading to the recyclers where we'll likely fetch about \$3.50. The cabling on the other side that heads to the buildings will stay in the ground and continue to be used for analog circuits.

**Q: What's next for the PBX?**

A: We're interviewing companies that would like to strip down the cabinets, and place parts in service with their clients. We are making sure the PBX goes to a responsible company that will treat the PBX how we expect it to be treated. Oh, and there is still residual value in the components.

**Q: When can we put offices down here?**

A: We have a bit more cleanup to do, and then we can start moving office furniture in! It has some amazing white noise from the A/C, is a steady 70F year-round, has a battery backup, and emergency generator. There are also laundry facilities about 10 feet away. The room serves as network distribution for west campus, and will have great connectivity in the space. The room is also equipped with card access





*Fig. 1*

**TULIO WOLFORD**

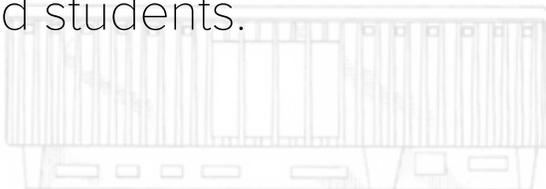
DIRECTOR OF SOLUTION SERVICES

## A MESSAGE FROM THE DIRECTOR

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ITS had a very exciting year! We encouraged outreach to the CC community by training with the Transitions Program, using new technology such as Tech Sandbox, and supporting the E-SPORTS program through their countless successes.

We plan to continue these programs and expand them by bringing new technology and skills to all faculty, staff, and students.



*Fig. 6*



*Fig. 5*

AV Services has been all over campus this year redesigning, upgrading, and expanding the network's system to give students a truly unique CC experience. The team renovated Cutler Hall's AV systems by adding a large presentation space with an interactive video wall. Two new conference rooms were added, along with three digital signs, two sound systems, and six other displays spread throughout the building.

Shove Chapel received a new sound system with additional speakers in chapel's rear and there was an upgrade to the electronic equipment and wireless network.

The Idea Space for Film and Media Studies was reimagined with a multi-use smart classroom that can also function as an event space. A lounge space with a TV and surround system was included, as well as another teaching space that doubles as a recording studio.

A Visual Resource Center was created in Packard Hall with the addition of a projector and a screen and sound system. Mathias movie theater space now contains a large projection screen with a laser projector and 5.1 surround sound. Improvements were made to the sound systems in Gates Commons, Mohrman Theatre, and the Celeste Theatre. The team also installed an additional ten new smart classrooms/learning spaces with fifteen flat-screen TVs.



## AUDIO VISUAL RENOVATIONS

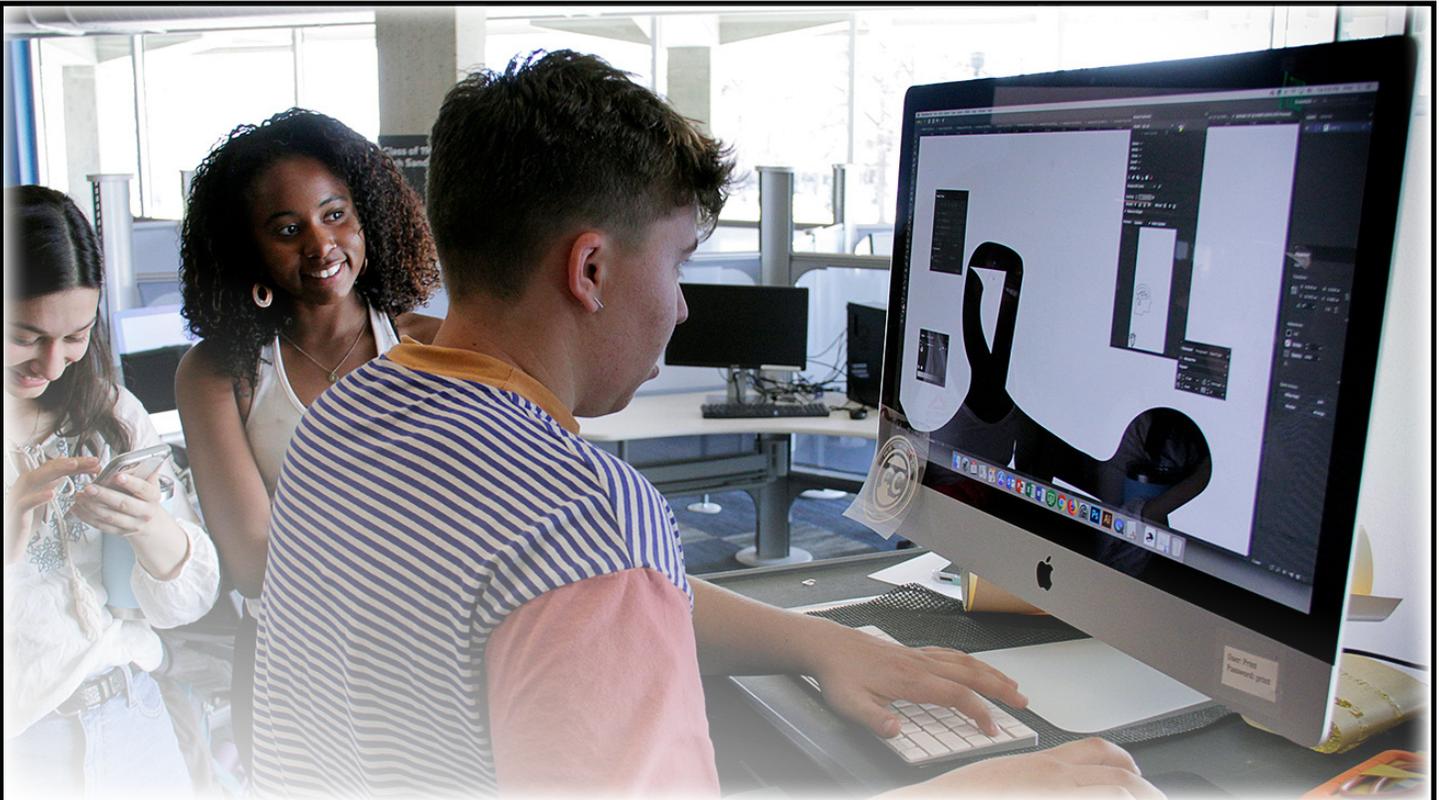
The Cornerstone Screening Room was updated with a 12,000 Lumen 4K Enhanced Laser Projector and a 22-inch touch screen control system with preview playback. It was designed with the casual user in mind, guaranteeing non-tech savvy users can operate it without training. The new microphone system is fully automated, adjusting levels as you speak, and the video system is designed for any presentation with a variety of video inputs to accommodate users' own devices including wireless sourcing for Mac, Windows and Mobile devices.

The room complies with the highest ADA standards and includes physical and system accommodations including a retractable lectern shelf and Listen Technologies' assistive listening devices.

The new JBL Synthesis surround sound system is an industry-standard found in movie theaters across the country.

The Cornerstone Screening Room is host to Film Festivals, student film screenings, lectures, and presentations, so, your Colorado College Information Technology Services team is proud to present a richer, easier to use, exciting media experience for all.





## CLOUD AND MOBILE

Developments and integrations to mobile services on the CC Mobile App platform and upgrades to various software and applications around campus



A **Banner upgrade from 8 to 9** featured several important enhancements, including a fresh userinterface, enhanced navigation, and new functionality across a wide selection of browsers, mobile phones, and tablets



The housing process was integrated into Banner **saving the college \$6,000 annually**



Multiple **improvements were made to student pre-registration and drop/add applications** to further bolster the block plan



Began the process of **modernizing data retention and integration** to seamlessly provide accurate and timely information to key individuals and decision-makers



Tiger Bucks swipe displays **now allow students to check balances** as they make purchases



The Fine Arts Center website has been **migrated to college resources and redesigned** to better align conceptually and visually with CC



# CANVAS

Canvas usage continues to grow each year since implementation in 2014 with postings of course readings, discussions and assignments

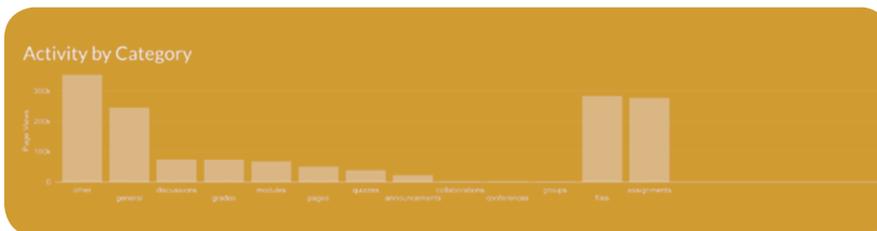
## FALL 2018



## SPRING 2019



An average of **2,000 students** along with **250 faculty** use **Canvas** for everything from homework to the Tenure Review process





# RECLAIM HOSTING

**Reclaim Hosting** now features **47 domains** by CC faculty and students.

In Block 4 of the Fall 2018 semester, **Paul Adler's** students broke into groups and built Wordpress sites that explained one historical, political, or cultural phenomena from the 1970s or 1980s, and in Block 6 of the Spring 2019 term, students in **Jane Murphy's** and **Jennifer Golightly's Public/Digital History course** used Omeka and Wordpress to contextualize and showcase artifacts from CC's Special Collections. **The Fountain**

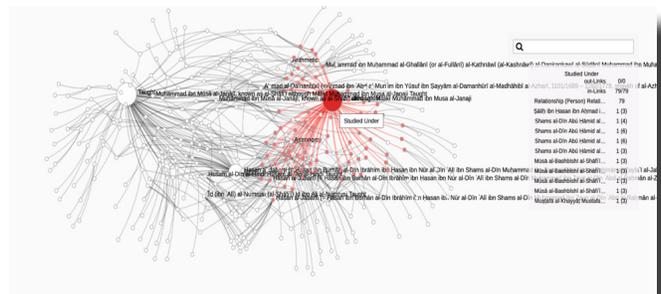


**Valley Water Project** site led by **Eli Fahrenkrug** and **Tyler Cornelius** utilized Reclaim, as did **Natanya Pulley's Hairstreak Butterfly Review**, a literary journal featuring poetry, non-fiction, interviews, and short fiction pieces.

# NODEGOAT



Nodegoat saw continued use across campus. Currently, CC has **28 domains and 63 users**, a significant fact because most institutions only have a single domain. History is the most active department due to **John Williams, Tip Ragan, and Jane Murphy** all having active domains containing large sets of data. **Meghan Rubenstein in Art has a domain, along with Naomi Trujillo in Communications for administrative purposes. Albert Hernandez-Lemus** in Philosophy also has a domain and **Chet Lisiecki** used Nodegoat in his **FYE** class. Students are also using Nodegoat for **research projects and senior thesis projects, and senior thesis exploratory** work as well.





There was increased usage of **ArcGIS Story Maps** across campus with **453 content creators**, including administrative use of the technology by **Keller Family Venture Grant Stories**. **Fountain Creek stakeholders** were given a formal presentation concerning **water pollution** that racked up **68,544 views** thanks to their story map being **featured on KRDO news**

Intro to GIS had **22 students enrolled for half block 2019 with 35 on the waitlist**



154 hours were volunteered for the **Humanitarian OpenStreetMap Team** with this year's students **mapping transportation infrastructure** in southern India following a devastating October typhoon

Professor **Christine Siddoway (Geology)** and other members from CC faculty, staff, and student body partnered with **Geodesign Hub, Pikes Peak Area Council of Government, Colorado Springs Utilities, and WiSRD** (local design firm) to think about holistic ways to design/redesign CC campus



The GIS Lab along with faculty, staff and students also participated in the very first **International Geodesign Collaboration**

Worked with many **SCoRe (Student Collaborative Research) students** and faculty, including **Professor Beth Malmskog's** work to end political gerrymandering and **redraw voter precinct boundaries**



Collaborated with **Chemistry Professor Nate Bower** mapping **lead isotopes** found in USAFA cadets tooth enamel

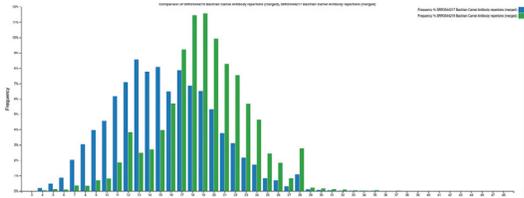
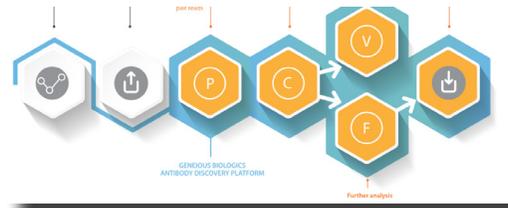
**Mapped Quality of Life Indicators for Pikes Peak United Way**, as well as creating research and **mapping opportunities that benefit local non-profits** like Concrete Couch



**GIS Technical Director, Matt Cooney**, was selected by Google to attend the **GeoForGood Summit**, a gathering of scientists, academics, and technologists from around the world to utilize Google Earth Engine and help solve world issues by predicting things like Malaria outbreaks, droughts, and famine

GIS LAB

## VIRTUAL LAB



Work done using VM biology software, **Geneious Biologics**

Expansion of mobile and virtual lab environments provided more access to students on better hardware. Organismal Biology & Ecology was the first class to have a **Virtual Machine created for every student to run complicated, time-sensitive information and DNA analysis without interruption.** The class was polled after the block and the VM was found to be a great success.

**Anthropology used Virtual Machines to assist in their Summer Project Research at the BACA campus.** All the students had different laptops of various models and operating systems, but having the same VM assigned to each student allowed them all to engage at the same level, furthering ITS's mission of inclusion through technology. Anthropology found the **app only version** of VM published by ITS particularly helpful because students could easily just **click on the app** instead of having to load a full desktop.

**A Labs and Virtual Technician position was created to have a person dedicated to the care and upkeep of public labs on campus.** The position was also created to develop strategies to improve, enhance, and update software delivery in physical and virtual environments.

# A MESSAGE FROM THE DIRECTOR

---

Dear friends,

As we prepare for the coming academic year, I would like to express my gratitude to the Applications & Security team as well as to all the members of ITS, other offices and departments in the college, and the larger college community. I have the privilege of working with colleagues who are intelligent, dedicated, and passionate about serving the students and the singularly compelling mission of Colorado College.

Every day we are provided an opportunity to innovate, develop as a community, and meet the constant changes in higher education as well as the ever-changing technology industry that we all constantly face as users and technicians alike. I am especially excited for the work that ITS is focusing on in the coming year. We are collaborating with students to create new and more appealing applications and providing our own staff as well as interested students a chance to learn new technology and build functionality to benefit various audiences. Protecting our students and the information that they've entrusted us with and using that information in ways we haven't thought of yet will be a focus for us as we collect data, define our application landscape, and improve our delivery of services to the community. Other focuses will be collecting and connecting people and data across campus to visualize our past, our current state, and an engaging path into the future. Data visualization will broaden and GIS will continue to grow as we support our academic mission and look for new ways to incorporate technology in education.

I truly cherish every day that I get to come to work, learn from everyone around me, grow myself and the others that I work with, and serve a campus that I love. I look forward to the successes of Colorado College, ITS, and the students we serve over the coming year. I'm confident that this will be a year of many accomplishments. Thank you all so much for everything you do.



**KATHARINA GROVES**

DIRECTOR OF APPLICATIONS AND SECURITY



# JAMF IS A SUCCESS!

ITS successfully navigated, built-out, and integrated **JAMF Mobile Device Management Server with over 650 clients** reporting for behavioral profiles, restrictions, applications, and anti-virus.

**All JAMF shell scripts** for staff/faculty Mac workstations, labs, library checkout mac, and iPad devices, and public space Mac computers were researched, hand-written, tested and implemented on all 94 programs.

Cornerstone Labs, Packard Music Lab, Packard Music Loaner MacBook Pro Lab, and more, were brought under JAMF's management, allowing for **quick application deployment and rapid build/rebuild/ updating of all workstations in those labs.**

JAMF's functions were **integrated with Apple's Device Enrollment Program**, ensuring mandatory lock-in management of ALL Apple technology purchased since July of '18. The program will **aid in reducing loss and/or theft of all new equipment**, and help to recover products that have been misplaced, stolen, or lost.

ITS also took ownership of all **Apple Volume Purchase Program** tasks for campus allowing for large sets of apps to be purchased and deployed with ease.



**Completed 3rd party web application penetration test on ERP systems** to find vulnerabilities in application development and configuration and created an **"Incident Response Plan"**, a set of procedures to address the repercussions of a cyberattack or data breach



Implemented **O365 Advanced Threat Protection** security policies to reduce phishing and malware



To prevent cross-site scripting attacks, SQL injections, and web scraping, **learning policies were established to identify malicious traffic and activity** on all internal and external web applications



An upgrade in CAS allowed CC to be **federated with 60 different services** and increased single sign-on security for **Handshake, WebEx, PageDNA, Adobe Cloud, and Duo**

# MULTI-FACTOR AUTHENTICATION

ITS began implementing **multi-factor authentication**. MFA will make it more difficult for scammers to access the college's data, whether it is personally identifiable information, individual research, financials, or other important records.

With user names and passwords becoming much easier to compromise, whether they are stolen, guessed, hacked, or obtained through a phishing email, it is important to add another layer of security.

**A second layer of authentication** is added through an app on your cell phone, a call through your office phone, or a token that produces a code. The college chose **Duo** as the software platform for implementing this needed second factor of authentication.



## MFA BY THE NUMBERS

- **542** Total Users
- Approximately **66%** of the full-time employees have MFA
- Approximately **19%** of the part-time, on-call, and temporary employees have MFA
- Approximately **27%** of the faculty have MFA (these numbers do not include block visitors)

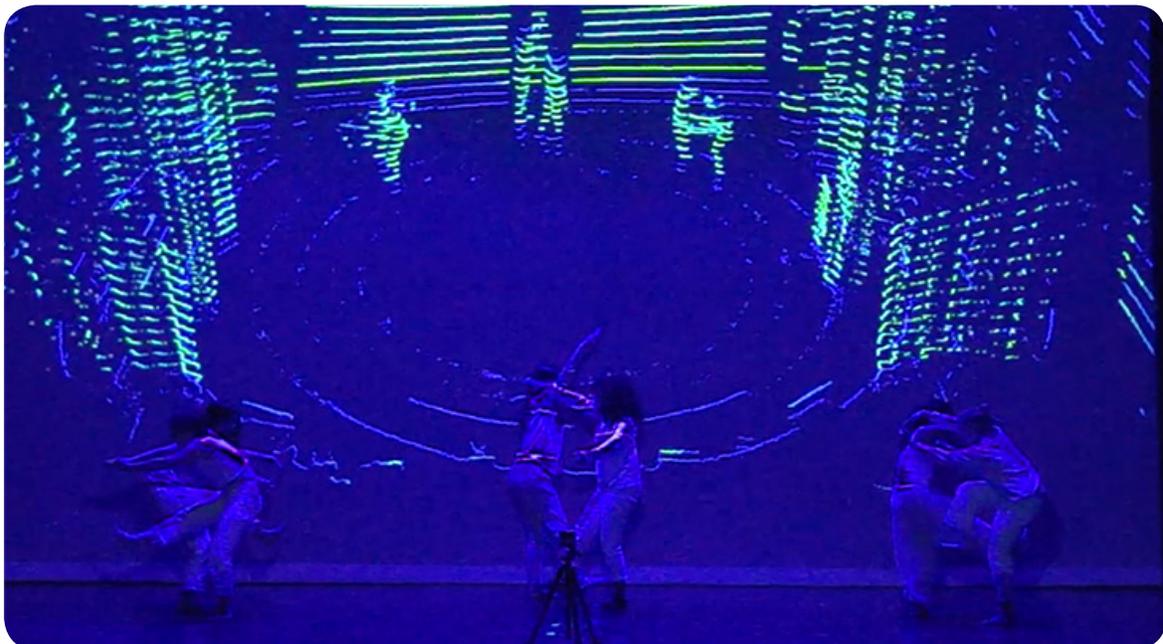


## PEOPLE

Focus on building positive and vision-driven culture through campus engagement, outreach, and educational support



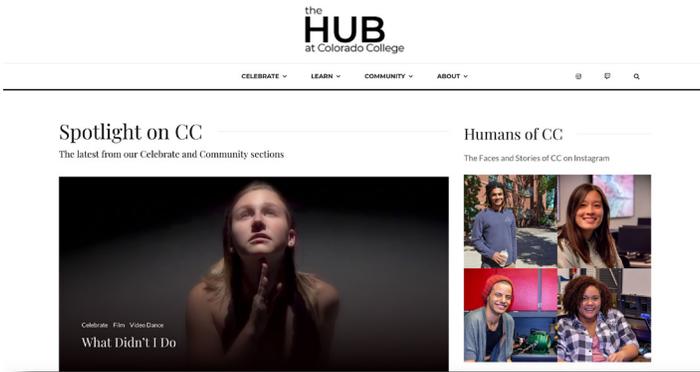
This past year ITS collaborated with student choreographers, **Koki Atcheson and Emily Burnham**, in utilizing **LIDAR** technology, a surveying method that measures the distance to a target by illuminating the target with laser light and measuring the reflected light with a sensor. Their piece, **Crunch or Slurp**, featured the technology to amazing effect.



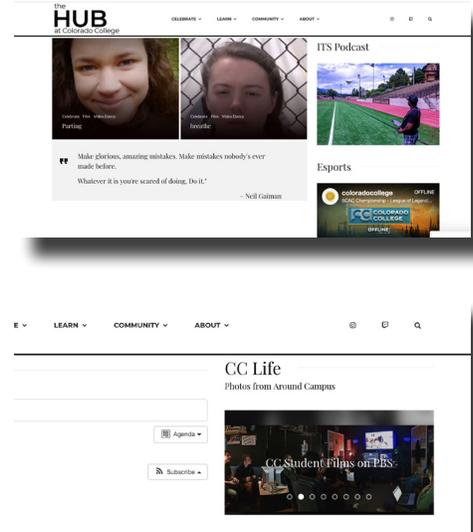


# THE HUB WEBSITE

The **HUB** is a **student-driven rebuild** of the popular Educational Solutions website focused on celebrating success and empowering the CC community.



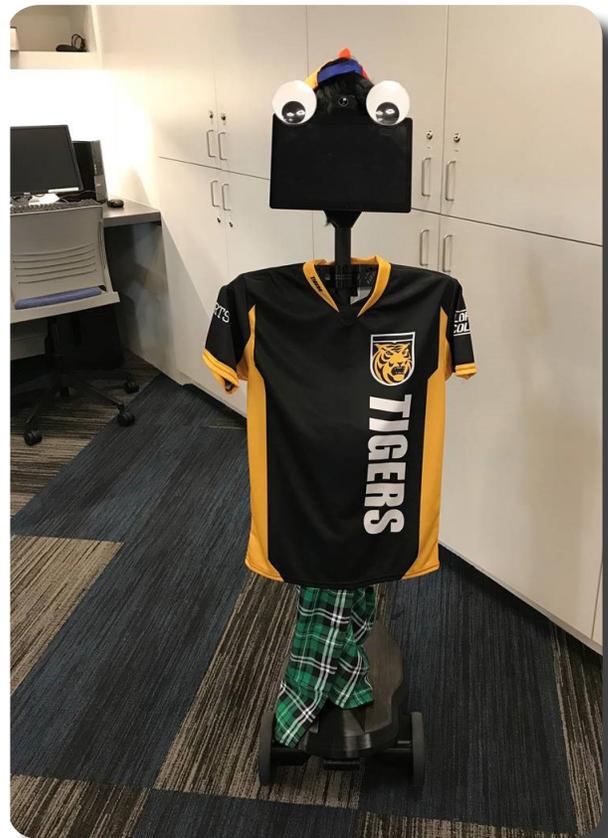
Hub front page ; <https://coloradocollege.website/hub/>



## KENNY



Pictured to your right is Kenny. Kenny gives people the ability to remotely connect and take part in events. The **telepresence robot**, a brainchild of ITS and students, has been used to **remotely attend class** and even **pitched as part of last year's Big Idea team**.



PEOPLE

## PEOPLE

E-Sports is a program started at CC in Fall of 2017 with the help of VP for IT Brian Young and Solutions Team Center Lead Chad Schonewill.

In Spring of 2018, the team participated in a local tournament hosted at another college in Colorado and that summer the team moved to have the old GIS lab location redesigned as a dedicated space for E-Sports.

By the end of last year, the E-Sports lab was an enormous success. The lab struggled to meet the demands of the student population within two weeks of opening and the schedule was booked nearly solid for seven days a week.

The team collaborated within the Southern Collegiate Athletic Conference (SCAC) on the first officially sponsored Division III E-Sports competition to use a multi-game format in the US.

The event took place in Spring 2019, with the format and rules set voted on by participating schools. Each college team played against each other in the weeks leading up to the event in order to seed the tournament. Colorado College won first place!



## WHAT THE FUTURE HOLDS

- Be a club sport at CC at the end of spring semester 2019, and a varsity sport complete with scholarships and recruitment.
- Keep evolving the competitive model and work on mirroring a traditional sports conference as much as possible as opposed to the enormous national tournament model or the small weekend tournament model that currently dominates
- Establishing a full-time position dedicated to running E-Sports now that we've proven its success
- Expand to a second lab more focused on a casual space for gaming and viewing video, which would be a great way to grow the overall community and make the program feel more inclusive
- Develop a web app called "E-Scrim" that aims to help collegiate teams find each other for scrimmages
- Include an additional official team and welcome prospective teams to organize

# ESPORTS



## ITS AMBASSADOR

An ITS ambassador program was developed to foster outreach to CC students, faculty, and staff. The position will assist departments with **targeted solutions in support of their technology** and **streamline business processes and automation** across CC's campus.

### **Mike Spiers,**

*Applications and System Integrator*

### **Jon Jensen,**

*Classroom Support Specialist*

### **LaShunda Simpson**

*Administrative Assistant*

### **Erica Hardcastle,**

*Events Team Lead*



## PROJECT MANAGEMENT OFFICE

This past year, **Linda Petro** took on the role of Project Management Officer to address IT initiatives that have a **large-scale, campus-wide impact**. The newly minted office will not only provide **planning, scheduling, development, and implementation direction** within the division, but also communicate with the campus about the status and progress of various projects. Since its creation the PMO has been involved with:



- **The completion of the audio/visual equipment upgrade in the Cornerstone Arts Center Screening Room**
- Communication for the final stages of the new phone system upgrade, as well as the training opportunities for the new equipment and tools that come with it
- **Multi-factor Authentication (MFA) implementation**



## PROFESSIONAL DEVELOPMENT

Seek to maintain leadership on campus, seek new ways to develop technical skills, and participate in campus-wide development initiatives



A new **virtual desktop pool** for the ITS division was created as a potential desktop and server replacement for several administrative tasks



Set up a server and designed interface for the implementation of an open-source ticketing system, **OSTicket**, saving CC \$15,000 a year



Worked with divisional leaders and stakeholders to **increase accountability and transparency** in a department's overall budget



Collaborated with the **Data Integrity and Reporting Team** to increase access to data that allows CC to identify, interpret, and visualize important trends and relationships more adeptly than in previous years



Along with the Budget Accountability teams, ITS **hosted a seminar for staff to develop negotiating skills**

# DOCU-SIGN

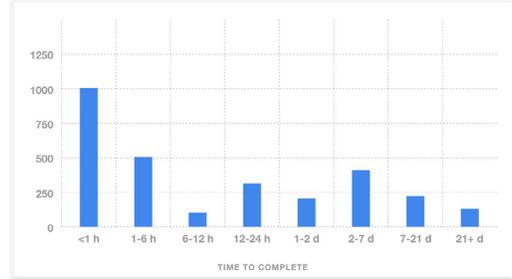


DocuSign usage was increased **278% across campus** from 628 completed envelopes to **2,376 completed envelopes over the course of a year**

Completion Rate



Envelope Velocity

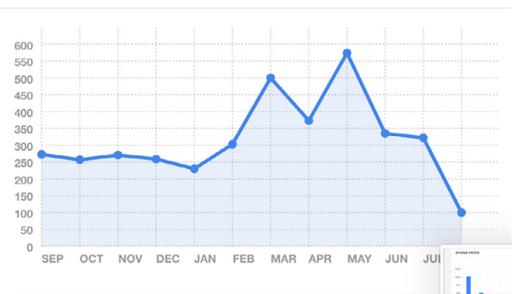


Envelope Status

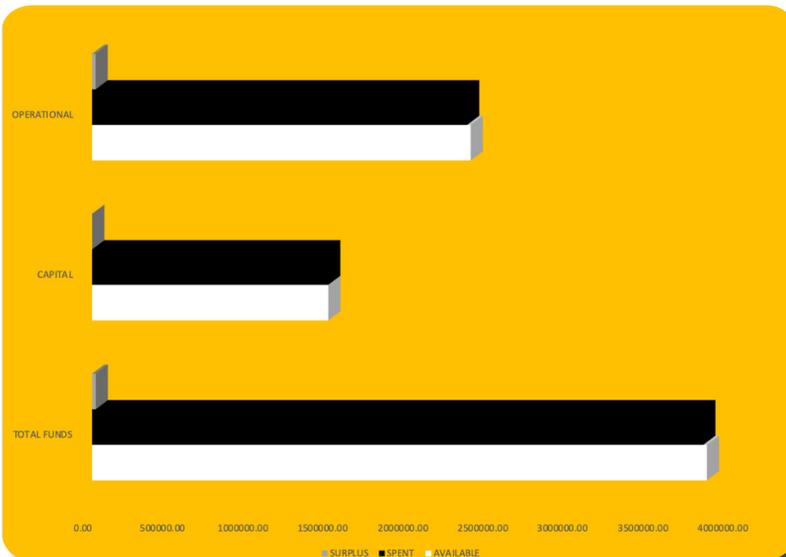


Sent	44
Delivered	13
Completed	2900
Correct	6
Declined	15
Voided	815

Envelope Volume



## FY 2018 - 2019 BUDGET



### OPERATIONAL

AVAILABLE - \$3,839,489.90  
 SPENT - \$3,816,782.64  
 RETURNING TO THE COLLEGE - \$21,843.21

### CAPITAL

AVAILABLE - \$1,475,409.00  
 SPENT - \$1,474,544.95  
 RETURNING TO THE COLLEGE - \$864.05

### TOTAL FUNDS

AVAILABLE - \$2,364,080.90  
 SPENT - \$2,342,237.69  
 RETURNING TO THE COLLEGE - \$22,707.26

# OUTSIDE ACHIEVEMENTS



**David White** became **certified in CIEH**, an ethical hacking method that can be used in penetration testing or ethical hacking.

**Dan Wiencek** completed four days of **Crestron training** equipping him with a more in-depth understanding of equipment and programming. Wiencek found the training useful for troubleshooting and standardizing the appearance of CC's chosen classroom control systems.



**Keith Conger** had a successful Kickstarter for his product, **WunderLINQ**, a BMW motorcycle smartphone charger/mount that allows hands-free control of user-selected navigation, multi-media player, and communication. The charger has been featured in magazines and websites across the world.

**Chris Bittner** worked as Sound Editor, Re-recording Mixer and Associate Producer for the film **July Rising** which was written, produced and directed by CC alum Chauncey Crail '17. Bittner also worked with CC faculty, Dylan Nelson and Clay Haskell, as sound editor and re-recording mixer, on their award-winning documentary **Last Dance at Johnson's Barn**. He also found time to receive a **Master of Science in Interactive Media degree** from Quinnipiac University.



**Jennifer Golightly** became a member of a program committee for the 2nd annual **Digital Scholarship in the Front Range Symposium**. The forum showcases research and pedagogical initiatives in the Front Range and Rocky Mountain West and works toward building a sustained community around work in digital humanities and computational social science.

Golightly also authored, "**Gender Performance and the Spectacle of Female Suffering in Samuel Jackson Pratt's Emma Corbett**", an essay on women's transatlantic travel in the fiction of the eighteenth century. Her work will be published in an edited collection with Bucknell University Press.

It's not all business in ITS. Pictured is **Jon Jensen** who in his rookie season of racing UTV's, took home **3<sup>rd</sup> in the nation** in his class this year.



# ORGANIZATIONAL STRUCTURE

