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GeoTECH
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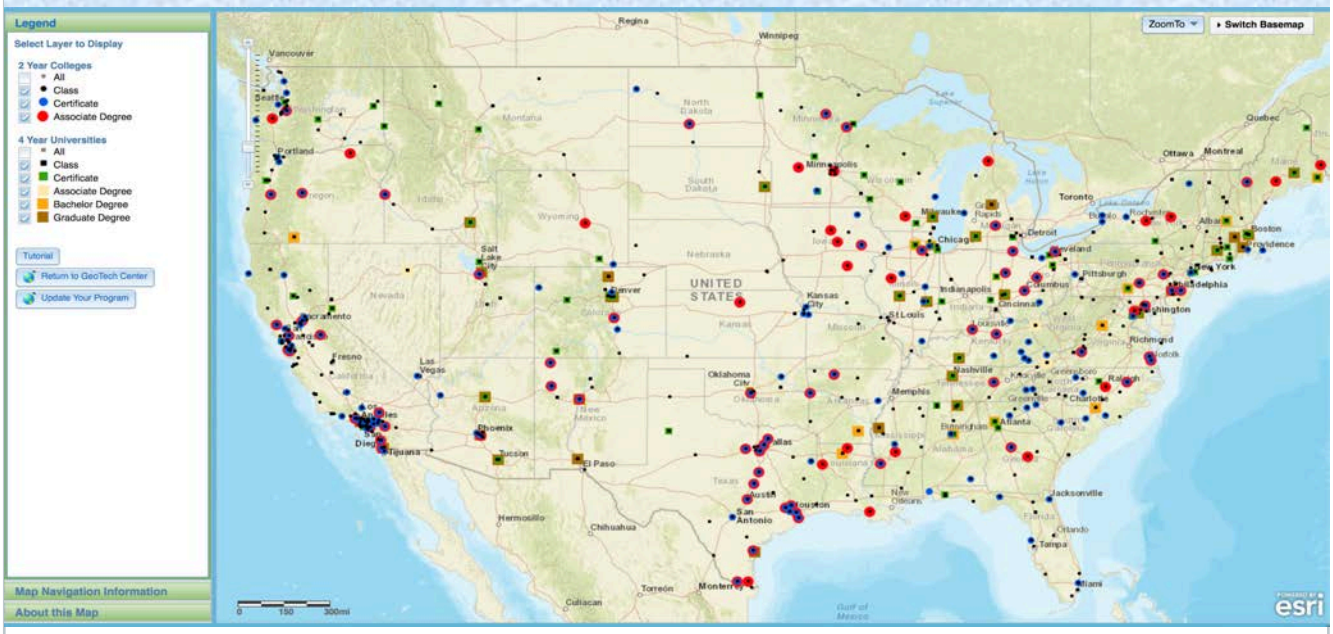
Empowering Colleges: Expanding the Geospatial Workforce



Copyrights and Licenses and Conditions, oh my!

by Dr. Wing Cheung, Palomar College

Whether you are an industry professional or an educator, I have some information about copyright and licensing that may surprise you. For example, unlike our Canadian neighbor, the United States does not have any special exemption for those who wish to use copyrighted materials for educational purposes.

Surprise #1: Any time you create original materials (e.g. this article, lab exercise, photos, videos), you automatically own the **copyright** for your materials until 70 years after your death. That's right! You don't need to do anything or contact anyone to copyright your materials, and others who

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GeoTech Center Information

This material is based on work supported by the National Science Foundation (DUE #1700496). Any opinions, findings, and conclusions expressed in this material are those of the authors(s) and not necessarily those of the National Science Foundation.

The GeoTech Center is virtual, comprised of a Director, four Associate Directors, and eight Assistant Directors from institutions across the nation. The central office is located at Jefferson Community and Technical College (JCTC) in Louisville, KY.

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Geospatial Education Awards, 2019!

Please help the GeoTech Center recognize worthy individuals or organization by nominating those educators or organizations that have made a significant contribution to geospatial education. Nominations are easy to submit by going to the Geospatial Education Awards for 2019 at the GeoTech Center website (geotechcenter.org).

Lifetime Achievement:

- Recognition of an educator for their long-term contribution to geospatial education at two-year colleges. Contributions may include exemplary teaching, innovation in teaching, student mentoring and support, building workforce and education partnerships, community outreach, providing leadership and other activities over a career at a two-year college.
- Qualified Candidates: A geospatial educator from a two-year college including current or retired full or part-time (adjunct) faculty.

Distinguished Geospatial Educator:

- Recognition of an educator who has made significant contributions to geospatial education in the last two years. Contributions can include innovations in teaching, curriculum and program development, creation of articulation agreements, student mentoring and support, and leadership or other activities that can be applied to other geospatial programs.
- Qualified Candidates: An educator at a high school, two or four year college or university that works closely with educators at all education levels in support of geospatial education.

Distinguished Geospatial Education Partner:

- Recognition of an organization that has made significant contributions in support of geospatial education at two-year colleges. The contributions can include outreach, curriculum development, internships and student support, resources for teaching and program development.
- Qualified Candidates: An organization (industry, professional organization or government agency) that has worked closely with educators, students or geospatial programs at two-year colleges.

For more information, please contact Ann Johnson at ann@baremt.com.

2019 Undergraduate Geospatial Skills Competition!

The GeoTech Center is pleased to announce the 2019 Undergraduate Geospatial Technology Skills Competition! The intent of the competition is to showcase the geospatial technology skills of U.S. undergraduate students. Competing students will create a project that utilizes geospatial technology to address a real-world problem. The student will then present the project and the resulting deliverables as a **Poster** that not only highlights their use of geospatial technology, but also demonstrates their communication and presentation skills.

The competition is software *neutral*.

Applicants must meet all of the requirements below to qualify for the competition:

- Applicants *must* be the age of 18 or older;
- Applicants *must* be enrolled during the **Fall 2018** term in a geospatial technology course (e.g., geographic information systems, remote sensing, GPS/GNSS, etc.) or geospatial technology program at an accredited 2-year or 4-year U.S. institution (undergraduate status);
- Applicants *must* reside in the U.S.;
- All work and cartographic output *must* be the original work of the applicant;
- Only *one* entry allowed per student; and
- Only *individual* student submissions allowed (no group projects).

The winners will be awarded registration, travel and accommodations to the 2019 GeoEd Conference in Louisville, Kentucky, where they will present their posters.

There will be 3 to 4 winners. It is anticipated that two of the student finalists will be from two-year colleges and one to two finalists will be from four-year institutions. The exact split will depend upon the number of students who enter the competition and the quality of the work submitted (judges also reserve the right to invite fewer student finalists).

For more information, including the judging rubric, please visit:
http://www.geotechcenter.org/2019-geospatial-technology-skills-competition.html

Or contact Tom Mueller, Competition Chairperson: Mueller@calu.edu.

All entries are due by March 8, 2019 at 1pm Eastern Standard Time.

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wish to use your original materials are technically supposed to secure your permission before doing so.

Surprise #2: If you wish to allow others to use your original materials, you may **license** others to do so while retaining the copyright for your materials. In other words, to license someone else to use your original materials is simply to give him/her the permission to use your work with/without specific conditions, but you still maintain ownership of your work.

Surprise #3: The four main types of licenses and conditions for those who wish to share their original materials with others are:

a) Permissive license: Anyone can use or modify your materials without any conditions as long as they credit the original author(s).
b) Copyleft license: Anyone can use or modify your materials as long as the final products that made use of your materials use the same type of license as your work.
c) Noncommercial license: Anyone can use or modify your materials as long as the final products that made use of your materials are solely for noncommercial use.
d) No Derivatives: Anyone can use your materials as long as they do not modify your work in any way or form.

Keep in mind that you may license your original work with one or more of the conditions mentioned in this section.

Surprise #4: To license your original materials for others to use, it is as easy as going to www.creativecommons.org, copy the verbiage for the specific type of license you wish to use, and include that verbiage in your work. This allows you to explicitly communicate to others that it is fine for them to use your original materials, and also inform them of any applicable terms or conditions.

To learn more about copyright, visit www.copyrights.gov.

Alternatively, visit www.creativecommons.org for more information about licensing.

Dr. Wing Cheung is the Principal Investigator of the UASTEP project. He is a Professor of Geography and the Chairman of the Earth, Space, and Environmental Sciences department a Palomar College. He is also the Coordinator of the Geographic Information Science as well as the Environmental Studies programs. Dr. Cheung is an Assistant Director of the GeoTech Center. Feel free to contact Dr. Cheung at: wcheung@palomar.edu.

Save the Dates!

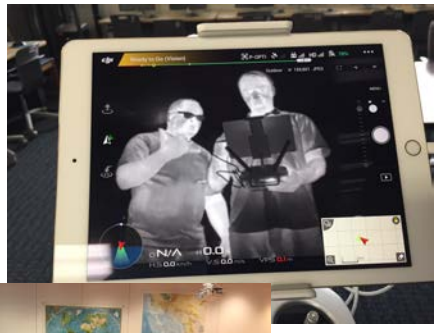
The National Geospatial Technology Center of Excellence will be sponsoring a number of regional workshops in 2019.

More information regarding the following workshops will be coming soon (along with locations and dates of other events).

GeoEd'19: June 10-12, 2018: GeoEd Conference and Exploratorium
The 12th annual GeoEd Conference and Exploratorium will be hosted by Jefferson Community and Technical College on the Southwest Campus during the week of June 10, 2019 (exact dates and times coming soon). GeoEd'19 will have featured speakers and high quality professional development activities covering a variety of subjects.

San Diego, CA: July 15-17, 2019:
The National Geospatial Technology Center of Excellence, in partnership with Southwestern College (SWC) and San Diego State University (SDSU), will host the 11th annual Geospatial Technology Summer Workshop. The workshop will be held in the Richard Wright Spatial Analysis Lab (SAL lab) on the campus of SDSU from July 15 -17, 2019. High school and 2-year/4-year college faculty, who have previous experience using geospatial technology tools, will come together to design and produce geospatial curriculum using ArcGIS online, mobile applications, drones, and ArcGIS Pro.

Lane Community College, Eugene, Oregon: August 6-8, 2019:
The National Geospatial Technology Center of Excellence, in partnership with Lane Community College, will host its first Geospatial Technology Summer Workshop. High school and 2-year/4-year college faculty, who have previous experience using geospatial technology tools, will come together to design and produce geospatial curriculum using ArcGIS online, mobile applications, drones, and ArcGIS Pro.



UAS at a College or University

At the recent Commercial UAV Expo in Las Vegas, a university roundtable facilitated by Kenneth Yanow (Associate Director) and Wing Cheung (Assistant Director) of the GeoTech Center, focused on ideas and issues related to teaching drone technology and applications at 2-year and 4-year institutions of higher education. The session, organized by Wing Cheung and Kat McDonald of Diversified Communications, covered topics such as program & curriculum development, preparing students for the workforce, and qualifications for instructors teaching within these programs. Some highlights and key takeaways from the session are summarized below. The full article is located on the Commercial UAV website at: https://www.expouav.com/news/latest/uas-program-college-university/

Creating a Path to Success with Drones

One obstacle faced by some in the university market is the need to dispel false notions that can stigmatize drones, such as the idea that drones aren't much more than fancy toys. Doing so is sometimes just a matter of creating greater awareness of drone tech to students at all levels. That said, numerous participants of the roundtable cautioned against marketing drone education courses as a career-making strategy. Rather, for many disciplines, drones are a powerful tool to assist in data collection (such as precision agriculture and environmental mapping) and/or payload delivery (such as pesticides or fire repellent). In this regard, students across a variety of disciplines should consider taking drone technology and application courses for their specific major. As with the promotion of STEAM (Science, Technology, Engineering, Arts, and Math) in all education levels, including K-12, roundtable participants found similar needs in drone technology and applications. They encouraged educators at all levels to create "drone pathways" that will enable even very young students to follow a professional path into drone tech.

Data and Drones

Carl Salvaggio, of Rochester Institute of Technology, led a discussion on data calibration and processing pipelines, noting the use of specialized sensors (e.g. multispectral, hyperspectral, LiDAR) in fields such as precision agriculture and environmental science, and the significance of radiometric and geometric calibration in data processing workflows. While sensors are an integral part of data collection with drones, it is just as important to grasp what the data represents and potential limitations. An incomplete understanding of photogrammetry and data accuracy can potentially lead to the misinterpretation of final outputs and cause confusion in the decision making process. Thus, coursework in these areas should be considered a critical element in the integration of drones for commercial and professional applications.

Making a Fit for Drones in the Classroom

What does it mean to create the right fit for students within a program? The answer depends on the focus of the drone program. These and other questions were covered in a roundtable on assessment and recruitment of potential students, led by Riley Beaman, of Montgomery Community College. The current (and future) drone workforce includes everything from robotics and computer programming to emergency response and geographic information systems (GIS). Students will also need skills and competencies such as professionalism and reliability (i.e. "soft skills"). As the industry and regulations regarding drone operations move forward it is important for instructors, courses, and programs to stay current with industry needs.

Preparing students for the commercial workforce

To adequately prepare drone tech students for the commercial workforce, minimum qualifications for an entry-level drone operator must be established. Those qualifications could be partly delineated by the FAA's relatively new Part 107 regulations. Terry Brase, of West Hills College, led a roundtable on preparing students for the commercial workforce; discussing essential skills for an entry-level drone operator. In addition to attracting students, drone educators need the feedback from industry leaders to ensure that students are prepared for the workforce when they graduate. Currently, the drone sector is short on apprenticeships, internships and other "learn as you earn" opportunities, which may be hindering entry into this new and exciting industry.

COMMERCIAL UAV EXPO