Workforce Readiness: Current and Future Generations

KATHLEEN STEWART

PROFESSOR, DEPT OF GEOGRAPHICAL SCIENCES

UNIVERSITY OF MARYLAND

Quick about me

- **Professor**, GIS/geospatial data science, Department of Geographical Sciences
  - Human mobility and spatial pattern analytics for transportation and health applications

- **Director**, Center for Geospatial Information Science

- **President-elect**, University Consortium for Geographic Information Science (UCGIS)

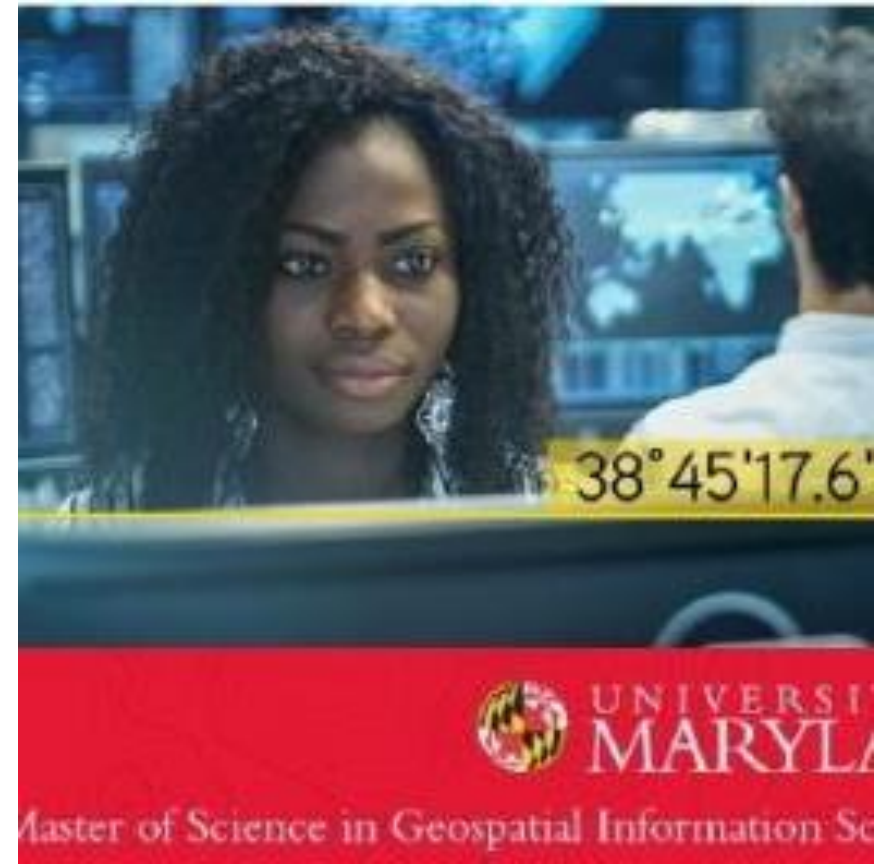- **Member,** National Geospatial Advisory Committee (NGAC)

geospatial.umd.edu

Workforce Readiness

- So **important**……Especially important for **institutions of higher learning** where the **value from a degree** is getting increasing scrutiny
  - Our students want to know that **what they are learning are skills that employers value and are seeking**
    - They want to know that they will have **what is needed for entry-level positions** or even surpass those needs and step into something more

  - **How do we do this at universities?**

Workforce learning opportunities: Master's Programs and Graduate Certificates

- In Geographical Sciences at UMD we have both **MS GIS and MS GEOINT programs** and each has a **graduate certificate** program
  - The MS GEOINT and its certificate are **accredited**…
  - **Designed for professionals**, all courses are in the **evening**, offered **virtually** as well as in person, all extra events are held virtually or in evenings, **fast track** completion, **full and part-time, active duty or veterans**
  - The curriculum is very **dynamic** and **responsive to new topics** (drone imagery, machine learning and data mining), capstone course with mentors from NGA, Esri, our faculty…)
  - **Graduate certificates** offer an opportunity to take just a few courses

UNIVERSITY OF MARYLAND

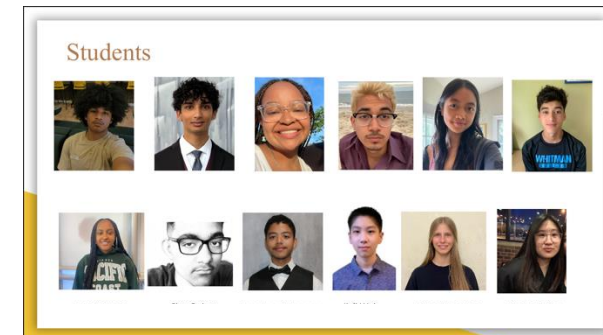Master of Science in Geospatial Information Sc

High School Internship program

- Our **high school internship program** aims to inspire high school juniors and seniors to engage in geographical sciences research. We provide **hands-on research experience** and mentorship to approx. students in the DMV region.

- **12 interns** in **summer 2024** all paired with faculty mentors

- We learn from our teachers and support them with their geospatial classroom efforts

High School Banquet 2024

Summer 2024 Interns

Workforce learning opportunities: Internships

Geographical Sciences Internship Directory

- We have an excellent **portfolio of internships** with **government agencies** at all levels (federal, state, city), **non-profits** and **action networks**, **foundations**, **programs** (e.g., Chesapeake Bay Program), **private companies**, some **campus organizations**
  - A **wide range of application domains** including environmental, climate, transportation, community-related, civic engagement, defense and many more – all with a geospatial focus
    - Student obtain **academic credit**, sometimes **paid internships**
    - Students discuss what they do in their internships in our courses – e.g., geovisualization course, careers course
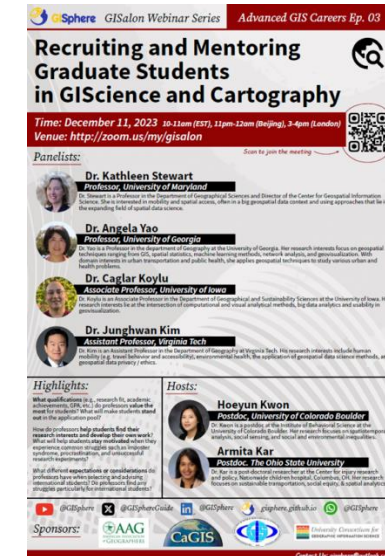-)

Career planning

- We have a **career planning course** for academic credit – brings in invited speakers

- We hold **career fairs** at least **once a year and sometimes twice** (fall and spring

How do we learn what is needed? Understanding skills in demand

- We hold **recruiting and mentoring talks** for incoming (new) graduate students – learn what they are seeking

- We provide **alumni talks**, bring in individuals who have gone through our degree programs and are now working to discuss their jobs, their own job search experience, and what advice they can give
  - Last fall we held a **careers and networking panel in association with the career fair** with individuals from US Census Bureau, MD Dept of Natural Resources, City of Hyattsville, a government contractor based in Washington, DC
    - We always are looking for individuals who would be interesting in talking with our students (we also hold e.g., what-it-means-to-be-a-postdoc and assistant professor panels for our students too…)

- Provide **hosted visits to local government agencies** e.g., NGA, NOAA – at least 1 session during the visit is typically career-related

MS students visit NGA

PhD programs

- **Our top degree**…a real **commitment timewise** that unlike an undergraduate degree comes at a time in one's life when setting aside the time for such a degree can be more challenging

- Is an opportunity for employers to support their employees with attaining such a degree…requires **flexibility and patience**…

- **Build and extends your professional network**
  - **Attending** and **presenting at professional meetings**…from annual conferences, user conferences, regional meetings, hosted site visits
  - Participate in **collaborative research**
  - **Summer internships** still hold here…**Google Summer of Code and Pysal, Google summer research internships…**

- **Can be challenging to recruit students into our PhD programs**
  - Important as these graduate are now routinely working outside the academy and not just taking academic jobs

PhD Students
Fall 2024

Some final thoughts

- The **University Consortium for Geographic Information Science (UCGIS**) has a **GIS&T Body of Knowledge** with **10 broad knowledge areas** and an extensive list of topics in each area that is an **incredible online learning resource**

- We do discover **gaps in our education and training programs** – e.g., geodesy – that need to be filled

- We would benefit from a **high school AP GIS course**

- **AI is bringing new opportunities**…we are learning together how to harness the capabilities of AI for geospatial and this is **a new area of learning** –how to integrate AI for geospatial analysis and prediction analytics and all the topics that stem from these tasks

Thank you!

Kathleen Stewart

stewartk@umd.edu

https://geog.umd.edu/facultyprofile/stewart/kathleen

MS GIS Information sessions:
Tuesday, October 1, 2024; 5-6pm ET RSVP
Thursday, November 7, 2024; 5-6pm ET RSVP

MS GEOINT Information sessions:
Thursday, October 3, 2024; 5-6pm ET RSVP
Tuesday, November 12, 2024 12-1pm ET RSVP

(links available on our geospatial.umd.edu MS program web pages