EXPLORE Building Path

Powerful Geography

CAREER CATEGORIES

- Architecture, Planning and Construction
- Engineering
- Housing/Urban Development
- Manufacturing, Production and Transportation
- Real Estate and Mapping/Zoning
- Trade Jobs
- Sciences (Physical)
- Technology

LEARN MORE www.powerfulgeography.org @PowerfulGeoUSA

EXPLORE
Architecture, Planning and Construction

Powerful Geography

CAREER EXAMPLES

Architecture

- Architect
- Architectural Designer
- Urban Planner
- Landscape Architect
- Interior Designer
- Architectural Technologist
- Building Surveyor
- BIM Manager (Building Information Modeling)
- Sustainability Consultant
- Historic Preservationist
- Urban Designer
- 3D Visualization Artist
- CAD Technician
- Project Manager (in an architectural firm)
- Construction Manager (with a specialization in architecture)
- Specification Writer
- Building Information Modeler
- Acoustic Consultant
- Lighting Designer (with a focus on architectural lighting)
- Façade Engineer
- Building Control Surveyor
- Design-Build Manager
- Environmental Designer
- Furniture Designer (specializing in architectural furniture)
- Model Maker
- Town Planner
- Researcher (in the field of architecture and urban planning)
- Building Regulations Inspector
- Sustainable Design Consultant
- Technical Illustrator (specializing in architectural visualization)
- Zoning Consultant
- Building Code Consultant
- Construction Estimator (focusing on architectural projects)
- Virtual Reality Architectural Specialist

EXPLORE
Architecture, Planning and Construction

Powerful Geography

CAREER EXAMPLES

Planning

- Urban Planner
- Regional Planner
- Environmental Planner
- Transportation Planner
- Land Use Planner
- Economic Development Planner
- Community Development Planner
- Historic Preservation Planner
- Housing Planner
- Infrastructure Planner
- Water Resource Planner
- Sustainable Development Planner
- Zoning Planner
- GIS Analyst and Specialist (Geographic Information Systems)
- Public Health Planner
- Climate Resilience Planner
- Demographer
- Urban Designer
- Landscape Planner
- Planning Director
- Planning Consultant
- Policy Analyst
- Real Estate Developer (with a planning focus)
- Transit Planner
- Community Engagement Specialist
- Site Planner
- Environmental Impact Analyst
- Brownfield Redevelopment Planner
- Disaster Recovery Planner
- Nuclear Emergency Planner
- Rural Development Planner
- Social Equity Planner
- Smart Growth Planner
- Retail Planning Analyst
- Waterfront Planner
- Urban Renewal Specialist
- Energy Planner
- Regional Development Specialist

EXPLORE
Architecture, Planning and Construction

CAREER EXAMPLES

Construction

- Construction Manager
- Project Manager
- Civil Engineer
- Structural Engineer
- Architect
- Site Engineer
- Building Services Engineer
- Construction Estimator
- Construction Laborer
- Carpenter
- Electrician
- Plumber
- Mason
- Painter
- Welder
- Heavy Equipment Operator
- Construction Inspector
- Surveyor
- Construction Safety Manager
- Construction Foreman
- Construction Scheduler
- Building Inspector
- Construction Material Inspector
- Construction Equipment Manager
- Construction Expediter
- Construction Lawyer
- Construction Accountant
- Crane Operator
- Demolition Worker
- Flooring Installer
- Glazier
- HVAC Technician
- Insulation Installer
- Landscaping Worker
- Pipefitter
- Plasterer
- Roofing Contractor
- Scaffolding Erector
- Steel Metal Worker and Fixer

EXPLORE

Architecture, Planning and Construction

CAREER EXPLORATION

Pick 2-3 jobs that interest you from the list of career examples. Write them down.

- ○ _____
- ○ _____
- ○ _____

Where (location) would you need to go to pursue (or get) these jobs?

What are some of the qualifications (for example: skills, degrees, knowledge) you need to have these jobs?

How could you make an impact in the world with these jobs?

EXPLORE Architecture, Planning and Construction

Powerful Geography

APPLYING GEOGRAPHY

Architecture

Urban planners use geographical data to analyze land use patterns, population density, and transportation networks to design sustainable and functional cities and communities.

Landscape architects utilize geographical knowledge to assess natural features, terrain, and climate in order to create outdoor spaces that harmonize with the environment and meet the needs of communities.

Environmental architects integrate geographical data to design eco-friendly and energy-efficient buildings, considering factors such as sun orientation, wind patterns, and local climate conditions to minimize environmental impact.

Regional architects incorporate geographical insights to create structures that align with the cultural, historical, and natural elements of a specific location, reflecting the local context and identity of the region.

Sustainable architects utilize geographical information to implement sustainable design principles, such as utilizing natural light and ventilation, incorporating green spaces, and selecting eco-friendly materials based on the geographic location and local environmental conditions.

Historic preservation architects rely on geographical data to understand the historical context and geographical significance of a structure or site, ensuring that restoration and preservation efforts maintain the original character and cultural importance of the area.

EXPLORE Architecture, Planning and Construction

Powerful Geography

APPLYING GEOGRAPHY

Planning

Urban planners utilize geographical data to assess the distribution of populations, land use patterns, and infrastructure to create sustainable and well-organized cities and communities.

Regional planners employ geographical knowledge to analyze the natural and built environments, considering factors such as transportation networks, economic trends, and environmental resources to develop comprehensive regional development plans.

Environmental planners integrate geographical data to assess natural resources, environmental risks, and ecological systems, aiming to develop land-use plans that promote sustainable development and minimize environmental impact.

Transportation planners use geographical information to evaluate traffic patterns, accessibility, and connectivity to design efficient and effective transportation systems, including roads, public transit, and bike lanes.

Land use planners rely on geographical insights to assess land suitability, zoning regulations, and development constraints in order to plan and allocate land for various purposes such as residential, commercial, industrial, and recreational areas.

Economic development planners utilize geographical data to analyze market trends, assess business locations, and identify growth opportunities in specific regions, facilitating economic development strategies and investment plans.

Community development planners use geographical information to identify community needs, assess social demographics, and plan for the development of public facilities, services, and amenities in a way that meets the requirements and aspirations of the local population.

Disaster recovery planners employ geographical data to assess vulnerable areas, identify risks, and develop emergency response plans to mitigate the impact of natural disasters and facilitate effective recovery efforts.

Historic preservation planners rely on geographical information to identify and preserve historically significant sites, structures, and cultural landscapes, ensuring that development activities respect and conserve the unique historical heritage of a region.

Water resource planners use geographical insights to manage and allocate water resources, assess watershed boundaries, and plan for sustainable water management practices, including the protection of water quality and the preservation of aquatic ecosystems.

EXPLORE Architecture, Planning and Construction

Powerful Geography

APPLYING GEOGRAPHY

Construction

Geographical analysis helps in **selecting suitable sites** for construction by considering factors like terrain, soil type, and natural hazards to ensure stable and secure building foundations.

Geographical knowledge is utilized to conduct **land surveys**, determine property boundaries, and assess topographical features for accurate construction planning and site preparation.

Geography is used to **assess the environmental impact** of construction projects, considering factors such as soil erosion, vegetation cover, and water resources to minimize ecological disruption.

Geographical data is employed to determine the appropriate **grading and excavation** strategies, taking into account terrain elevation, soil composition, and drainage patterns to facilitate smooth and safe construction operations.

Geographical information is used to **design appropriate foundations**, considering soil stability, seismic activity, and flood risk to ensure the structural integrity and durability of buildings in different geographic regions.

Geography aids in planning effective **drainage systems**, assessing natural water flow, and identifying flood-prone areas to design resilient and efficient drainage infrastructure that mitigates the risk of water damage during construction.

Geographic knowledge helps in **selecting construction materials** suitable for specific environments, considering factors such as temperature variations, humidity levels, and weather conditions to ensure the durability and longevity of the built structures.

Geographical data assists in conducting **seismic analysis** to assess the seismic vulnerability of construction sites, enabling the implementation of appropriate structural designs and reinforcements to withstand potential earthquake activity.

Geography is applied to promote **sustainable construction practices** by considering factors such as solar orientation, wind patterns, and natural ventilation to optimize energy efficiency and minimize the environmental impact of buildings.

Geography plays a role in **integrating construction projects into urban planning** initiatives, considering factors like population density, transportation networks, and land use regulations to ensure that new developments align with the broader urban framework and contribute to sustainable urban growth.

EXPERIENCE Architecture, Planning and Construction

MEET THE GEOGRAPHERS

Architecture

Jane Daniels
Director of Preservation Programs at Colorado Preservation, Inc
Link to Interview

"As geographers, we have a tendency to look at the world in a broad sense, preparing a proposal explaining why a site should be preserved and developing plans for how it should be interpreted require her to analyze a wide array of data. For that reason, geographers need to consider the site's historical, cultural, political and economic contexts as well as material aspects of the surrounding landscape, such as transportation networks, zoning restrictions, and local architecture, but also needs to carefully evaluate the costs, benefits, opportunities, and limitations of each potential project. In my opinion, professionals with an interdisciplinary background that combines the liberal arts and the natural sciences are particularly well-equipped for this sort of work."

"One of the principal reasons for studying geography is that its disciplinary techniques force us to engage with the world around us. Those techniques make us look, look again, measure, listen, feel, even smell and taste in ways that we might not do in the course of our everyday lives. With some considerable care, we can distill one key argument from 'new' cultural geographies of landscape in general, and of the many individual buildings. Buildings refer to – or symbolize – diverse systems, intentions, histories, meanings and cultural assumptions. Buildings are not simply coherent, individual edifices that stand rather blankly, waiting to be used. Rather, they are afforded both meaning and value by processes happening external to them – from the political machinations of city planning to the influences of historical architectural styles. Architectural geographers have inaugurated, refined and deployed some of the key methodologies for studying landscapes, exemplified by geographers. They demonstrated that the methodological complexity attendant to studying buildings makes them such fascinating and provocative objects for study: it is precisely because architecture is constituted by such diverse fields of politics, practice and passion that buildings become the locus for ardent contestation."
– Peter Kraft (2010). Geographies of Architecture: The Multiple Lives of Buildings. Geography Compass, 4(5): 388-489. Link to Article.

Planning

"Planners need to understand the processes that shape the landscape and determine the distribution of features such as land use and human settlements, while geographers require an appreciation of the ways that individual and organizational decision-making influence the patterns and character of development on the face of the land. My work [...] brought together the two fields of study that I had previously pursued and practiced in other parts of the world. [...] When employed as public servants, planners have to abide by the policies determined by their political masters. The extent to which political decisions and actions reflect the will of the people depends on which people hold the most influence. The results of this truth can be seen in the landscape and in the geography of human settlements."

– Brian Hudson, "A Geographer in Planning; a Planner in Geography" Link to Personal Essay.

Construction

"As a general contractor (construction manager) located in Connecticut, there are various ways that geography plays a role in what I do. First off are the location of the jobs that I get -- being located in the middle of New England, I have construction jobs all over the state of Connecticut, as well as New York, New Jersey, Massachusetts, Rhode Island and even Vermont and New Hampshire. I do everything in my business -- that is I am the CEO, CFO, COO, the designer, the employer, the laborer, and the boss -- so when I choose a project I am involved every step of the way. Being aware of the spatial aspect allows me to choose jobs that I can reach as well as travel to and from since I need to check in on projects frequently. Construction jobs include remodeling franchises like Starbucks to personal businesses and individuals homes. Geography plays a part in the type of materials I use on a project, for instance, many homes I work on are on the coast, so those are updated to code to withstand hurricanes and floods. But also when designing these homes the inclusion of big windows and an outdoor patio is a must, so that the family can enjoy the waterfront view and breeze. Another project I worked on was an indoor batting practice business, so when I built it from the ground up I made sure to include the New York Yankees legendary stadium facade, an ode to the culture of Yankee baseball in Connecticut."

Adam Zadrozny
General Contractor
Rolling Stone Construction, Connecticut

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EXPERIENCE

Architecture, Planning and Construction

FIND LOCAL GEOGRAPHERS

***INSTRUCTIONS* CONDUCT AN ONLINE SEARCH TO FIND LOCAL INDIVIDUALS WHO DO THE JOB YOU ARE INTERESTED IN.**

WRITE DOWN THEIR NAME, JOB TITLE, AND USE THE LINES TO WRITE DOWN WHAT THEY DO

Name: _____

Job Title: _____

Name: _____

Job Title: _____

***EXTENSION* IF POSSIBLE, TRY AND INTERVIEW THE PERSON AND ASK THEM HOW THEY USE GEOGRAPHY! WRITE YOUR FINDINGS IN THE OPEN SPACES**

EXPAND

Architecture, Planning and Construction

TAKE IT GLOBAL

FIND EXAMPLES OF THESE CAREERS IN DIFFERENT REGIONS

Architecture

Latin America and Caribbean	**Europe**
Middle East and North Africa	**Sub-Saharan Africa**
Central Asia and Russia	**East Asia**
South Asia	**Oceania**

EXPAND

Architecture, Planning and Construction

TAKE IT GLOBAL

FIND EXAMPLES OF THESE CAREERS IN DIFFERENT REGIONS

Planning

Latin America and Caribbean	**Europe**
Middle East and North Africa	**Sub-Saharan Africa**
Central Asia and Russia	**East Asia**
South Asia	**Oceania**

EXPAND

Architecture, Planning and Construction

TAKE IT GLOBAL

FIND EXAMPLES OF THESE CAREERS IN DIFFERENT REGIONS

Construction

Latin America and Caribbean	**Europe**
Middle East and North Africa	**Sub-Saharan Africa**
Central Asia and Russia	**East Asia**
South Asia	**Oceania**

EXPAND

Architecture, Planning and Construction

MAKING CONNECTIONS

HOW IS THIS CAREER IMPACTED BY THESE THEMES?
HOW DOES THIS CAREER IMPACT THESE THEMES?

Architecture, Planning & Construction

Physical Geography	**Human Geography**
Places and Region	**Environment and Society**

EXPLORE Engineering

CAREER EXAMPLES

Engineering

- Civil Engineer
- Mechanical Engineer
- Electrical Engineer
- Chemical Engineer
- Computer Engineer
- Aerospace Engineer
- Biomedical Engineer
- Environmental Engineer
- Industrial Engineer
- Materials Engineer
- Nuclear Engineer
- Petroleum Engineer
- Structural Engineer
- Acoustic Engineer
- Agricultural Engineer
- Automotive Engineer
- Marine Engineer
- Mining Engineer
- Robotics Engineer
- Systems Engineer
- Software Engineer
- Geotechnical Engineer
- Water Resource Engineer
- Manufacturing Engineer
- Quality Control Engineer
- Process Engineer
- Instrumentation Engineer
- Control Systems Engineer
- Power Engineer
- Renewable Energy Engineer
- Telecommunications Engineer
- Traffic Engineer
- HVAC Engineer
- Mechatronics Engineer
- Optical Engineer
- Reliability Engineer
- Sales Engineer
- Research and Development Engineer
- Test Engineer
- Project Engineer

EXPLORE *Engineering*

CAREER EXPLORATION

Pick 2-3 jobs that interest you from the list of career examples. Write them down.

- ○ _____
- ○ _____
- ○ _____

Where (location) would you need to go to pursue (or get) these jobs?

What are some of the qualifications (for example: skills, degrees, knowledge) you need to have these jobs?

How could you make an impact in the world with these jobs?

EXPLORE Engineering

APPLYING GEOGRAPHY

Engineering

Civil engineers use geography to assess land characteristics, terrain features, and natural hazards to plan and design infrastructure projects such as roads, bridges, and buildings in a way that aligns with the geographical context.

Environmental engineers employ geography to evaluate environmental factors, including air and water quality, soil composition, and ecological systems, to develop sustainable engineering solutions that mitigate environmental impact and promote ecological conservation.

Geotechnical engineers apply geographical knowledge to analyze soil properties, geological formations, and terrain stability to provide recommendations for safe and stable construction practices and the design of foundations for various engineering projects.

Urban planners utilize geography to analyze demographic trends, land use patterns, and transportation networks to develop comprehensive urban development plans that promote sustainable growth, efficient resource utilization, and the creation of livable and resilient cities.

Transportation engineers apply geography to analyze traffic flow, assess transportation accessibility, and plan efficient transportation networks that optimize mobility, reduce congestion, and enhance the connectivity of different geographical regions.

Water resources engineers employ geography to assess watershed boundaries, study hydrological patterns, and plan water management strategies that ensure the sustainable use of water resources and the prevention of water-related disasters in various geographic locations.

Coastal engineers use geographical insights to assess coastal erosion, study wave patterns, and plan coastal protection measures to mitigate the impact of natural disasters and ensure the resilience of coastal infrastructure in different geographical settings.

Renewable energy engineers apply geography to assess solar and wind potential, study geographical energy distribution, and plan renewable energy infrastructure in various geographic locations to promote the sustainable and efficient use of renewable energy resources.

Remote sensing engineers utilize geographical data from satellite imagery and aerial surveys to monitor environmental changes, conduct land cover analysis, and support engineering projects by providing real-time spatial information and monitoring of dynamic geographic features.

Geographic Information Systems (GIS) specialists use geographical data to develop digital maps, conduct spatial analysis, and create geographic visualizations that support engineering projects by providing valuable insights into geographic relationships and spatial patterns.

EXPERIENCE Engineering

Powerful Geography

MEET THE GEOGRAPHERS

Engineering

"From geography, or the computer science side of geography, I think it's really important to be familiar with Esri products like ArcGIS Pro or ArcDesktop, because those are widely used, especially in cities and municipalities. Then, understanding what Esri portal and enterprise are and how to use ArcGIS Online. Even as a developer, I use those tools all the time. I primarily use web applications. I don't usually use maps very often unless they're embedded in a web application. So, I do a lot of mapping applications where geovisualization is an important part of that. On a personal level, I've been able to explore some environmental issues that generally align well with my personal values. I feel like I get to make a positive impact, and even with fields and sectors of oil and gas that I wouldn't necessarily see myself working in, I like that I get to help with environmental compliance and making sure that field workers are safe and sticking to appropriate procedures."

Keaton Shennan GIS Web Developer at WSB Engineering
Link to Interview.

"Spatial ability in its various forms is needed to pursue knowledge in both sciences (such as physics, life science, chemistry, geology, and parts of geography) and some of the social sciences and humanities (e.g.. sociology, anthropology, history).

Geographers can become actively involved in using the real world both to help students recognize the richness of geography as a field of study and to assist them in gaining the crucial spatial skills they will need to achieve success in a science or technological field. For example, by focusing attention on mapping skills [...] instructors must ensure that a variety of types of maps (topographic, road, and reference) are studied and used so as not to disadvantage any one gender or cultural group. It is also important to ensure that all students understand the implications of mapping skills both for employment opportunities and for everyday life. One important classroom strategy that we endorse is to make students [...] aware of the importance to future career paths in science and technology of the knowledge of geography and the spatial abilities it develops. It also appears that development of geographic knowledge and spatial abilities should benefit from a multidisciplinary, integrated approach to teaching coupled with variety in learning modes.

Recent work indicates that teacher interventions (e.g., science fairs, using real world spatial illustrations, etc.), along with an encouraging equal opportunity attitude and fair classroom practices, should help all students to develop and display their spatial abilities even if they do not plan science, engineering, or technology as a career choice."

- Self and Golledge (1994). Sex-related differences in spatial ability: What every geography educator should know. Journal of Geography, 93(5): 234-243. Link to article.

"Through technological/ engineering design challenges, students are situated within an environment that requires application of knowledge and concepts from multiple subject areas even beyond STEM disciplines to solve pressing technological issues. Technological developments related to manufacturing and housing provide an ideal context not only for Technology Education, but open the door for World Geography. Concepts that can be intentionally incorporated into design challenges and are essential in solving global technological issues include culture, climate, interpreting maps, and understanding the geographical resources of a region."

- Grubbs and Grubbs (2015) Beyond science and math: Integrating geography education. Technology and Engineering Teacher, 74(4): 17-21. Link to Article.

EXPERIENCE

Engineering

FIND LOCAL GEOGRAPHERS

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WRITE DOWN THEIR NAME, JOB TITLE, AND USE THE LINES TO WRITE DOWN WHAT THEY DO

Name: _____

Job Title: _____

Name: _____

Job Title: _____

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EXPAND

Engineering

TAKE IT GLOBAL

FIND EXAMPLES OF THESE CAREERS IN DIFFERENT REGIONS

Engineering

Latin America and Caribbean	**Europe**
Middle East and North Africa	**Sub-Saharan Africa**
Central Asia and Russia	**East Asia**
South Asia	**Oceania**

EXPAND

Engineering

MAKING CONNECTIONS

HOW IS THIS CAREER IMPACTED BY THESE THEMES?
HOW DOES THIS CAREER IMPACT THESE THEMES?

Engineering

Physical Geography	**Human Geography**
Places and Region	**Environment and Society**

EXPLORE Housing and Urban Development

Powerful Geography

CAREER EXAMPLES

Housing/Urban Development

- Real Estate Developer
- Property Manager
- Land Acquisition Manager
- Construction Manager
- Project Coordinator
- Real Estate Analyst
- Environmental Planner
- Transportation Planner
- Land Use Planner
- Economic Development Planner
- Community Development Planner
- Historic Preservation Planner
- Asset Manager
- Housing Development Consultant
- Financial Analyst (Specializing in Real Estate)
- Market Research Analyst (Specializing in Real Estate)
- Sales and Marketing Manager (in Housing)
- Property Appraiser
- Property Inspector
- Real Estate Broker
- Community Relations Manager
- Urban and Regional Planner
- Home Inspector
- Landscape Architect (with a focus on housing development)
- City Planner
- Community Development Director
- Economic Development Specialist
- Zoning Administrator
- Housing Coordinator
- Public Works Director
- Urban Designer
- Sustainability Manager (in Urban Development)
- GIS Specialist (with an Urban Planning focus)
- Housing Policy Analyst
- Public Health Planner (in Urban Settings)
- Community Organizer
- Smart City Coordinator
- Urban Renewal Specialist
- Public Relations Manager (Specializing in Urban Development)

EXPLORE

Housing and Urban Development

CAREER EXPLORATION

Pick 2-3 jobs that interest you from the list of career examples. Write them down.

- ○ _____
- ○ _____
- ○ _____

Where (location) would you need to go to pursue (or get) these jobs?

What are some of the qualifications (for example: skills, degrees, knowledge) you need to have these jobs?

How could you make an impact in the world with these jobs?

EXPLORE Housing and Urban Development

Powerful Geography

APPLYING GEOGRAPHY

Housing/Urban Development

Urban planning utilizes geographic insights to plan and design sustainable and functional urban spaces, considering factors such as population distribution, land use, and transportation infrastructure to support the growth and development of cities and communities. Applying **GIS technologies** to analyze and visualize spatial data related to housing, infrastructure, and urban development, facilitates better decision-making and resource allocation for effective city planning.

Applying geographic data analysis to assess **housing market analysis and trends**, including property values, rental rates, and housing supply and demand in different neighborhoods and regions, to inform housing development and investment decisions. Using geographic understanding to identify and address **community development and the needs of specific communities**, including access to housing, infrastructure, and social services, to promote equitable and inclusive development in different geographic areas.

Incorporating geographic knowledge to regulate and **manage land use**, including zoning regulations, building codes, and environmental protections, to ensure the efficient and sustainable use of land for housing and urban development. Incorporating geographic understanding **to plan and develop infrastructure projects**, including roads, utilities, and public facilities, considering population distribution and geographical features to support the efficient functioning of urban areas.

Using geographic knowledge to **integrate sustainability principles into urban development plans**, considering factors such as green spaces, energy efficiency, and public transportation to create environmentally friendly and livable communities.

Leveraging geographic insights to **identify areas with a high demand for affordable housing**, developing policies and programs that promote affordable housing options in different geographic regions to address the housing needs of diverse communities. Using geographic insights to promote **transit-oriented development** that focuses on creating vibrant, mixed-use communities around public transportation hubs, reducing reliance on private vehicles and promoting sustainable urban living.

Conducting **accessibility analyses** to assess the availability of housing, amenities, and services in different geographic areas, ensuring that residents have equitable access to essential resources and opportunities within their communities.

Utilizing geographic data to **study population demographics and trends** in different neighborhoods and regions, enabling informed decision-making for targeted housing and urban development initiatives tailored to the needs of specific communities. Using geographic insights to **engage with local communities and stakeholders,** considering their perspectives and feedback on housing and urban development projects to ensure that initiatives align with the needs and aspirations of the residents.

Applying geographic knowledge to develop **disaster resilience plans** for housing and urban infrastructure, considering factors such as natural hazards, climate risks, and geographical vulnerabilities to enhance the resilience of communities and reduce the impact of potential disasters.

EXPERIENCE Housing and Urban Development

Powerful Geography

MEET THE GEOGRAPHERS

Housing/Urban Development

Chris Holtkamp, PhD
Assistant Professor,
Environmental Planning,
University of Wisconsin
- River Falls
Link to Interview

"One thing it did was it certainly gave me that big picture perspective and looking at relationships across different factors. Also obviously GIS is a big part of urban planning so having just that technical skill of Geographic Information Systems is important. And three, I think it gave me you know that understanding of the physical environment because obviously when we start to talk about cities -- you know how they are built, where we build things -- is influenced by the physical environment; so things like floodplains and natural hazards and all of these concepts of geography that we talk about influence how we build cities where we build cities and so we need to incorporate those ideas of the physical environment into how we design places to make them more sustainable, make them more resilient, and less vulnerable to hazards."

"When I came out of undergrad I was extremely proficient in things like GIS and creating maps and so forth. [...] what I find important is that foundation in spatial analysis, understanding spatial analysis, and being able to convey those ideas of how to analyze something out spatial level to the technician the person that's actually doing the GIS mapping or what have you. And I think one of the more interesting things, once again with the geography background having the training and experience in map making, is recognizing how the softwares have made it easy for individuals to make maps but that doesn't necessarily mean that they understand how to represent data geographically. So being able to convey that information and making sure that when we are representing data that we're doing it in a way that's sensitive to the spatial context of that data."

Donald Poland, PhD
Senior VP Managing
Director of Urban
Planning
Goman & York Property
Advisors,
Connecticut
Link to Interview

"The highly variable residential landscapes of Rio de Janeiro are changing rapidly in response to intersecting vectors: a cycle of global mega-events that has accelerated real estate speculation, the occupation of strategic favelas by state military police, and the implementation of state-led urban development projects. The general trend has been toward an increase in rents across the metropolitan region with an identifiable process of gentrification occurring in select neighborhoods. By examining data from Rio de Janeiro's primary online real estate search engine (zap.com.br), newspaper reports, interviews with residents and personal experience, this paper examines the processes of gentrification in four different regions of the city: (1) Flamengo, a centrally located middle-class neighborhood; (2) the Zona Portuaria, a port region undergoing state-financed, privately led "revitalization"; (3) the Vidigal favela in Rio's Zona Sul; (4) the suburban neighborhood of Barra da Tijuca, site of closed-condominium real estate speculation and Olympic-led infrastructure investment (Figure 1). The paper examines what kinds of gentrification are happening in Rio de Janeiro, suggesting a multiplicity of gentrifications within a mega-city in the Global South."
- Christopher Gaffney (2016). Gentrifications in pre-Olympic Rio de Janeiro. Urban Geography, 37(8): 1132-1153. Link to Article.

EXPERIENCE

Housing and Urban Development

FIND LOCAL GEOGRAPHERS

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Name: _____

Job Title: _____

Name: _____

Job Title: _____

***EXTENSION* IF POSSIBLE, TRY AND INTERVIEW THE PERSON AND ASK THEM HOW THEY USE GEOGRAPHY! WRITE YOUR FINDINGS IN THE OPEN SPACES**

EXPAND

Housing and Urban Development

TAKE IT GLOBAL

FIND EXAMPLES OF THESE CAREERS IN DIFFERENT REGIONS

Housing/Urban Development

Latin America and Caribbean	**Europe**
Middle East and North Africa	**Sub-Saharan Africa**
Central Asia and Russia	**East Asia**
South Asia	**Oceania**

EXPAND

Housing and Urban Development

MAKING CONNECTIONS

HOW IS THIS CAREER IMPACTED BY THESE THEMES?
HOW DOES THIS CAREER IMPACT THESE THEMES?

Housing/Urban Development

Physical Geography	**Human Geography**
Places and Region	**Environment and Society**

EXPLORE
Manufacturing, Production and Transportation

CAREER EXAMPLES

Manufacturing and Production

- Assemblers and Fabricators
- Car Manufacturers
- Jeweler and Precious Stone and Metal Worker
- Metal and Plastics Machine Workers
- Power Plant Operators, Distributors, and Dispatchers
- Warehouse Workers
- Water and Wastewater Treatment Plant and System Operators
- Product Development Manager
- Manufacturing Process Engineer
- Quality Control Inspector
- Industrial Engineer
- Operations Manager
- Supply Chain Manager and Analyst
- Logistics Coordinator
- Process Technician
- Process Engineer
- Assembly Line Worker
- Line Operator
- Machine Operator
- Maintenance Technician
- Inventory Manager
- Inventory Controller and Control Specialist
- Procurement Specialist
- Warehouse Manager
- Packaging Engineer
- Continuous Improvement Manager
- Materials Planner
- Manufacturing Supervisor
- Manufacturing Technician
- Robotics Technician
- Automation Engineer
- Tool and Die Maker
- Quality Assurance Manager
- CNC (computer numerical control) Machinist
- CNC Programmer
- CAD/CAM Engineer
- Production Manager
- Production Supervisor
- Production Coordinator
- Production Scheduler
- Production Planner
- Production Technician
- Packaging Operator
- Industrial Designer
- Plant Manager
- Research and Development Engineer
- Facilities Manager
- Safety Manager

EXPLORE
Manufacturing, Production and Transportation

Powerful Geography

CAREER EXAMPLES

Transportation

- Pilot
- Helicopter Pilot
- Air Traffic Controller
- Flight Attendant
- Aircraft Mechanic
- Commercial Driver
- Delivery Driver
- Dispatcher
- Transportation Planner
- Logistics Coordinator
- Freight Broker
- Transportation Manager
- Traffic Analyst
- Urban Planner (focus on transportation)
- Railway Engineer
- Locomotive Engineer
- Railroad Conductor
- Marine Engineer
- Water Transportation Workers
- Ship and Boat Captain
- Port Manager
- Harbor Master
- Transportation Inspector
- Aviation Safety Inspector
- Public Transit Operator
- Taxi Driver
- Ride-share Driver
- Traffic Engineer
- Bicycle and Pedestrian Planner
- Transportation Economist
- Freight Handler
- Customs Broker
- Supply Chain Manager
- Commodities Shipping Manager
- Airport Manager
- Transportation Security Screener
- Transportation Maintenance Worker
- Transportation Modeling Specialist
- Vehicle Inspector
- Parking Manager
- Transportation Analyst
- Transportation Lawyer

EXPLORE

Manufacturing, Production and Transportation

CAREER EXPLORATION

Pick 2-3 jobs that interest you from the list of career examples. Write them down.

- ○ _____
- ○ _____
- ○ _____

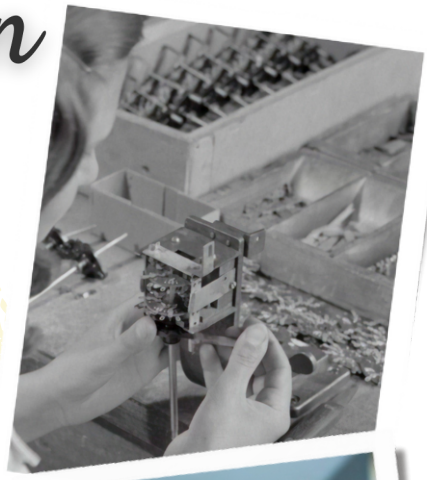
Where (location) would you need to go to pursue (or get) these jobs?

What are some of the qualifications (for example: skills, degrees, knowledge) you need to have these jobs?

How could you make an impact in the world with these jobs?

EXPLORE Manufacturing, Production and Transportation

Powerful Geography



APPLYING GEOGRAPHY

Manufacturing and Production

Geography is utilized in **supply chain management** to assess transportation networks, understand regional logistics, and plan the efficient movement of goods and materials across different geographic locations.

Industrial engineers apply geographical knowledge to analyze production site locations, assess regional labor markets, and optimize manufacturing processes that are tailored to the geographic advantages and constraints of specific areas.

Quality control inspectors use geography to understand regional quality standards, assess environmental factors that may affect product quality, and ensure that manufacturing processes meet the geographical regulations and standards of a particular area.

Production planners employ geography to analyze market demand in different geographic regions, understand regional consumer preferences, and develop production plans that align with the specific market needs and geographical variations of target areas.

Operations managers utilize geography to assess regional infrastructure, understand transportation accessibility, and coordinate manufacturing activities that optimize operational efficiency and logistics management across various geographic locations.

Manufacturing technicians apply geographical knowledge to understand local regulations and safety standards, assess environmental impacts on production processes, and implement manufacturing practices that adhere to the specific geographical requirements of a particular area.

Materials scientists use geography to assess regional availability of raw materials, understand geological formations, and develop material sourcing strategies that consider the geographic variations and environmental sustainability of material extraction processes.

Environmental health and safety specialists employ geography to assess local environmental regulations, understand regional environmental risks, and develop safety protocols and risk management strategies that meet the geographical compliance standards and requirements of specific areas.

Process improvement analysts utilize geography to assess regional manufacturing trends, understand industrial clusters, and identify opportunities for process optimization and efficiency enhancement that align with the specific geographic manufacturing landscape of different areas.

Logistics coordinators apply geographical knowledge to plan transportation routes, understand regional trade policies, and coordinate the movement of goods and products to and from manufacturing facilities in a way that optimizes logistical operations and meets the geographical demands of different markets.

EXPLORE Manufacturing, Production and Transportation

APPLYING GEOGRAPHY

Production and Manufacturing

Geographical analysis is used to **assess suitable locations for production plants**, considering factors such as proximity to raw materials, transportation accessibility, and market proximity to ensure efficient production operations.

Geography is applied in production jobs to **locate and source raw materials**, considering geographic availability, regional supply chains, and environmental sustainability to support the efficient and reliable procurement of materials for production processes.

Geography is utilized to **manage supply chains, assess regional logistics, and optimize the movement of materials and goods** across different geographic locations to support production operations and meet market demands.

Geographical knowledge is used in **designing manufacturing processes** that consider regional environmental factors, resource availability, and local regulations to ensure the efficient and sustainable production of goods within specific geographic contexts.

Geography aids in **inventory management** by assessing demand variations across different geographic regions, understanding regional consumption patterns, and optimizing inventory levels to support production schedules and meet market needs.

Geography is applied in production jobs to **assess regional quality standards**, understand environmental impacts on production processes, and implement quality control measures that adhere to specific geographical regulations and standards.

Geographical analysis supports the **planning of distribution networks and warehousing facilities**, considering transportation accessibility, regional demand variations, and market proximity to ensure the effective storage and timely delivery of manufactured goods to different geographic locations.

Geography is employed in production jobs to **assess regional environmental regulations, understand ecological impacts, and implement sustainable production practices** that adhere to specific geographical compliance standards and environmental requirements.

Geography aids in **optimizing production** processes by analyzing geographic variations in demand, understanding regional labor markets, and identifying opportunities for process improvement and efficiency enhancement within specific geographic manufacturing landscapes.

Geographical knowledge supports the development of **market expansion strategies** by assessing regional market potentials, understanding consumer demographics, and identifying new geographic markets for the distribution and sale of manufactured products.

EXPLORE Manufacturing, Production and Transportation

Powerful Geography

APPLYING GEOGRAPHY

Transportation

Fleet managers use geography to plan vehicle routes, understand terrain variations, and optimize fleet operations to ensure the timely and cost-effective delivery of goods and services within specific geographic regions.

Transportation planners employ geographical knowledge to analyze transportation demand, assess regional connectivity, and develop comprehensive transportation plans that enhance mobility and accessibility for different communities within specific geographic areas.

Air traffic controllers utilize geography to monitor airspace, understand flight paths, and coordinate air traffic movements to ensure the safe and efficient operation of aircraft within specific geographic regions and airspace sectors.

Transportation security officers apply geographical knowledge to assess transportation vulnerabilities, understand regional security risks, and develop security protocols and procedures that meet the transportation security standards and requirements of specific geographic locations.

Logistics managers utilize geography to assess transportation networks, understand regional supply chain dynamics, and optimize the movement of goods and materials across different geographic locations.

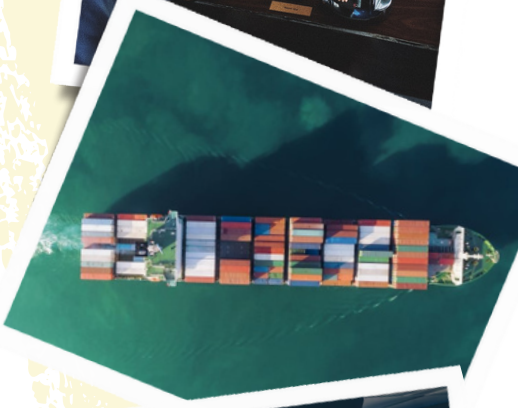
Traffic analysts use geography to assess traffic flow, understand congestion patterns, and plan traffic management strategies that improve the efficiency and safety of transportation systems in specific geographic areas.

Civil engineers apply geographical knowledge to design and build transportation systems, such as roads, bridges, and tunnels, that are tailored to the terrain and environmental conditions of specific geographic regions.

GIS specialists employ geographical data to develop digital maps, conduct spatial analysis, and create geographic visualizations that support transportation planning and infrastructure development by providing insights into geographic relationships and spatial patterns.

Transportation economists apply geography to assess regional transportation demand, understand market dynamics, and develop transportation policies and pricing strategies that meet the geographical transportation needs and economic conditions of different areas.

Urban planners use geography to analyze population distribution, understand traffic patterns, and plan transportation infrastructure that supports efficient and sustainable urban mobility.



EXPERIENCE
Manufacturing, Production and Transportation

Powerful Geography

MEET THE GEOGRAPHERS

Manufacturing

"American manufacturing is highly differentiated geographically. Different regions of the country, different metropolitan areas, and even different counties within the same metropolitan area differ greatly in their manufacturing industries, technology levels, wages, and plant sizes. Moreover, groups of manufacturing industries cluster systematically in different types of metropolitan areas. [...] Manufacturing in most metropolitan areas follows one or more of six broad patterns of industry clustering. These patterns are anchored in high specializations in computers and electronics, transportation equipment, low-wage manufacturing industries, chemicals, machinery, and food production. [...] Contrary to the popular view that geography does not matter much for manufacturing, most U.S. manufacturing jobs are located in metropolitan areas. [...] In Metropolitan areas, especially large metropolitan areas and central metropolitan counties, contain the great majority of manufacturing jobs and nearly all very high-technology manufacturing jobs, reflecting the advantages they provide to manufacturing in general and very high-technology manufacturing in particular. [...] U.S. metropolitan areas have become increasingly specialized in manufacturing since 1980 but they vary widely in their manufacturing activities and focuses. Nearly all metropolitan areas specialize strongly in at least one manufacturing industry even if they do not specialize strongly in manufacturing as a whole. [...] public policy should enhance the innovation and productivity advantages that metropolitan areas offer manufacturers, while eliminating artificial incentives for manufacturers to seek low-wage locations. Because there is so much regional variation in manufacturing, federal policy should provide a platform for state, local, and metropolitan efforts, which can formulate policies to respond to regional needs."

- Helper, Krueger, and Wial (2012). Locating American Manufacturing: Trends in the Geography of Production. Metropolitan Policy Program at Brookings. Link to Article.

Production

"We develop a set of stylized facts about the Japanese production network to guide our model. Large and productive firms have more suppliers than small firms. Geographic proximity plays an important role in the matching of suppliers and customers. Most connections are local; the median distance to a supplier is 30 kilometers. Larger firms not only have more suppliers but, on average, have suppliers that are farther away. The production network displays negative degree assortativity; the trading partners of well-connected firms, on average, are less well connected themselves. Consider two firms, one with many suppliers, the other with few. The suppliers to the well-connected firm have, on average, relatively few customers. The suppliers to the less connected firm have, on average, many customers. Many of these facts are also present in cross-border trade networks; for example, negative degree assortativity is also found in exporter-importer networks in international trade."

- Bernard, Moxnes, and Saito (2019). Production Networks, Geography, and Firm Performance. Journals of Political Economy, 127(2). Link to Article.

Transportation

"Whether by sea, land, or air, the entirety of trade in goods is carried out by the transportation sector. With world trade at full steam, the transportation sector has become central in everyday life. Yet, little is known about how the market for transportation services interacts with the market for world trade in goods. The transportation sector includes several different segments which can be split into two categories: those that operate on fixed itineraries, much like buses, and those that operate on flexible routes, much like taxis. Containerships, airplanes, and trains primarily belong to the first group, while trucks, gas and oil tankers, and dry bulk ships primarily belong to the second. Here, we focus on oceanic shipping and, in particular, dry bulk shipping; 80% of world trade volume is carried by ships and dry bulkers carry about half of that. Dry bulk ships are the main mode of transportation for commodities, such as grain, ore, and coal. They are often termed the 'taxis of the oceans,' as an exporter has to search for an available vessel and hire it for a specific voyage, with prices set in the spot market in a decentralized fashion."

- Brancaccio, Kalouptsidi, & Papageorgiou (2020). Geography, Transportation, and Endogenous Trade Costs. Econometrica Journal of the Econometric Society, 88(2), 657-691. Link to Article.

EXPERIENCE

Manufacturing, Production and Transportation

FIND LOCAL GEOGRAPHERS

***INSTRUCTIONS* CONDUCT AN ONLINE SEARCH TO FIND LOCAL INDIVIDUALS WHO DO THE JOB YOU ARE INTERESTED IN.**

WRITE DOWN THEIR NAME, JOB TITLE, AND USE THE LINES TO WRITE DOWN WHAT THEY DO

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Job Title: _____

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EXPAND

Manufacturing, Production and Transportation

TAKE IT GLOBAL

FIND EXAMPLES OF THESE CAREERS IN DIFFERENT REGIONS

Manufacturing

Latin America and Caribbean	**Europe**
Middle East and North Africa	**Sub-Saharan Africa**
Central Asia and Russia	**East Asia**
South Asia	**Oceania**

EXPAND

Manufacturing, Production and Transportation

TAKE IT GLOBAL

FIND EXAMPLES OF THESE CAREERS IN DIFFERENT REGIONS

Production

Latin America and Caribbean	**Europe**
Middle East and North Africa	**Sub-Saharan Africa**
Central Asia and Russia	**East Asia**
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EXPAND

Manufacturing, Production and Transportation

TAKE IT GLOBAL

FIND EXAMPLES OF THESE CAREERS IN DIFFERENT REGIONS

Transportation

Latin America and Caribbean	**Europe**
Middle East and North Africa	**Sub-Saharan Africa**
Central Asia and Russia	**East Asia**
South Asia	**Oceania**

EXPAND

Manufacturing, Production and Transportation

MAKING CONNECTIONS

HOW IS THIS CAREER IMPACTED BY THESE THEMES?
HOW DOES THIS CAREER IMPACT THESE THEMES?

Manufacturing, Production & Transportation

Physical Geography	**Human Geography**
Places and Region	**Environment and Society**

EXPLORE Real Estate and Mapping and Zoning

Powerful Geography

CAREER EXAMPLES

Real Estate and Mapping/Zoning

Real Estate Jobs:
Real Estate Agent
Real Estate Broker
Property Manager
Real Estate Appraiser
Real Estate Developer
Leasing Consultant
Real Estate Analyst
Property Inspector
Real Estate Attorney
Escrow Officer
Real Estate Marketing Manager
Mortgage Broker
Commercial Real Estate Broker
Land Developer
Real Estate Investment Trust (REIT) Manager
Real Estate Asset Manager
Property Accountant
Real Estate Economist
Real Estate Loan Officer
Real Estate Photographer

Mapping and Zoning Jobs:
GIS Specialist (Geographic Information Systems)
Cartographer
Land Surveyor
Urban Planner
Zoning Specialist
City Planner
Environmental Planner
Geospatial Analyst
Remote Sensing Specialist
Mapping and Surveying Technician
Land Use Planner
Geographic Information Officer
Civil Engineer (with expertise in mapping and zoning)
Zoning Administrator
Environmental Scientist (with a focus on land use and zoning)
GIS Coordinator
Land Use Attorney
City Engineer
Zoning Inspector

EXPLORE

Real Estate and Mapping and Zoning

CAREER EXPLORATION

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EXPLORE Real Estate and Mapping and Zoning

Powerful Geography

APPLYING GEOGRAPHY

Real Estate

Real estate agents use geographic knowledge to assess property values, neighborhood demographics, and local market trends, helping clients make informed decisions when buying, selling, or investing in real estate.

Utilizing geographic insights to **assess property values** based on location-specific factors such as neighborhood amenities, school districts, and proximity to commercial areas.

Applying geographic data analysis to **study real estate market trends**, including property prices, rental rates, and housing supply and demand in different neighborhoods and regions.

Using geographic understanding to **assist clients in selecting the most suitable locations** for real estate investments or developments, considering factors such as accessibility, market demand, and zoning regulations.

Incorporating geographic insights to **conduct a comparative market analysis** (CMA) by comparing similar properties in the same geographic area, providing clients with accurate and data-driven information for making informed real estate decisions.

Leveraging **GIS technologies to visualize and analyze** spatial data related to real estate properties, enabling professionals to make informed decisions based on location-specific information.

Mapping/Zoning

Utilizing geographic insights to **plan and regulate land use**, including residential, commercial, and industrial zoning, to ensure efficient and sustainable use of land and resources.

Applying geographic knowledge to enforce **zoning regulations**, including building codes, land development ordinances, and environmental protections, to maintain the integrity and functionality of different geographic areas.

Using geographic data and mapping technologies to **create and maintain accurate parcel maps** that depict property boundaries, land use designations, and other geographic features for effective land management and planning.

Incorporating geographic understanding to **manage urban growth and development**, considering factors such as population density, transportation infrastructure, and environmental concerns to promote well-planned and sustainable urban expansion.

Utilizing geographic insights to assess the **compliance of properties with zoning regulations**, ensuring that land use and development activities adhere to the specific requirements and restrictions outlined in the zoning ordinances.

EXPERIENCE

Real Estate and Mapping and Zoning

MEET THE GEOGRAPHERS

Real Estate and Mapping/Zoning

"In the real estate business it is common to assume that the value and potential of a property is fundamentally determined by its location. Certain sites are attractive because they may have a beautiful view, shore and forests in the vicinity, good rail and road connections without noise and all kind of public and private services. Corporate Property Evaluation has generally focused on financial methods that analyse how site-specific variables will influence potential costs and revenues from the site; unfortunately these methods sometimes do not take in account all the possible considerations for the site. This project studies the importance of spatial factors in real estate appraisal and evaluates which of them affect the value of the properties. The result could be useful to evaluate, for example, for geographical expansion strategies. The study is carried out using Geographical Information Systems, which are computer systems capable of storing, displaying and analysing geographical information."

- Alicia E. Porcar Lahoz (2007). An Analysis of How Geographical Factors Affect Real Estate Prices. Royal Institute of Technology (Master's of Science Thesis). Link to Thesis.

"Foreign investment in residential real estate is re-emerging as a key political issue in several Anglo-sphere and Asian countries. The global real estate activities of the Four Asian Tiger countries (i.e., Hong Kong, Singapore, South Korea and Taiwan) in Anglo-sphere markets in the 1980s are well documented. The increasing foreign investor activity of new middle-class and super-rich investors from Brazil, Russia, India, China and South Africa (known collectively as the BRICS) in global real estate markets has introduced or revived some deep-seated cultural and political sensitivities. Government and public responses to the latest manifestation of global real estate investment has taken different forms. On the back of the well-reported rise in Chinese investment in local real estate in Australia, for example, in 2014, the federal government conducted a parliamentary inquiry into individual foreign investment in residential real estate. In Canada, under mounting pressure to take action on housing affordability, the government reviewed their investment visa programme. In London, a 300-strong group of protestors picketed against foreign real estate investment outside The World Property Market international real estate event. Meanwhile, European Union countries such as Spain, Greece, Cyprus and Turkey have introduced visa schemes targeting investors from Asia, Russia and North America in an attempt to attract global capital to their local real estate markets. In Asia, the Chinese government tightened up foreign investment rules for real estate in 2010, and the Singaporean and Hong Kong governments introduced staged 'cooling measures' with implications for foreign investment in real estate beginning in 2009 and 2010, respectively. In the fluid regulatory environment in Hong Kong, the government suspended their Capital Investment Entrant Scheme in January 2015.

Within this changing global context, [...] issue on the globalisation of real estate present a diverse range of empirical case studies from Canada, Hong Kong, Singapore, Russia, Australia and Korea.

- David Ley examines the impact of international real estate investment on the local housing market in Vancouver, Canada.
- Choon-Piew Pow exposes the strategies that are used by investors and the government in Singapore to create and seek out new safe havens within which to 'park' and 'grow' super-rich wealth.
- Karita Kan moves beyond culturally essentialist analyses of global real estate transactions to show how Hong Kong investors have made inroads into the Mainland Chinese market. This analysis draws attention to geopolitical questions at the abstract level of the nation-state as well as the more embodied level on the ground.
- Mirjam Büdenbender and Oleg Golubchikov consider geopolitical questions. It demonstrates that global real estate and property markets play an increasingly important role in international relations, and in this Russian case study, foreign investment has emerged as a form of soft geopolitical power.
- Hyung Min Kim shows how foreign investment is organised socio-spatially in Seoul, Korea. In this case, a knowledge of local conditions, which is often built through previous residency or a shared ethnicity, is important in shaping the spatial distribution of foreign investment in the city.
- Finally, Alexandra Wong focuses on Mainland Chinese foreign real estate investments into Sydney's Chinatown district, with Chinatown being an important global-urban node within the emerging Chinese foreign real estate market in Sydney."

- Dallas Rogers and Sin Yee Koh (2017). The Globalisation of Real Estate: The Politics and Practice of Foreign Real Estate Investment. International Journal of Housing Policy, 17(1). Link to Article.

EXPERIENCE

Real Estate and Mapping and Zoning

FIND LOCAL GEOGRAPHERS

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EXPAND

Real Estate and Mapping and Zoning

TAKE IT GLOBAL

FIND EXAMPLES OF THESE CAREERS IN DIFFERENT REGIONS

Real Estate and Mapping/Zoning

Latin America and Caribbean	**Europe**
Middle East and North Africa	**Sub-Saharan Africa**
Central Asia and Russia	**East Asia**
South Asia	**Oceania**

EXPAND

Real Estate and Mapping and Zoning

MAKING CONNECTIONS

HOW IS THIS CAREER IMPACTED BY THESE THEMES?
HOW DOES THIS CAREER IMPACT THESE THEMES?

Real Estate and Mapping/Zoning

Physical Geography	**Human Geography**
Places and Region	**Environment and Society**

EXPLORE

Trade Jobs

CAREER EXAMPLES

Trade Jobs (Includes Installation, Maintenance, & Repair)

- Electrician
- Plumber
- Carpenter
- Welder
- HVAC Technician (Heating, Ventilation, and Air Conditioning)
- Masonry
- Roofer
- Painter
- Glazier (Glass Installation) and Glazier Technician
- Flooring Installer
- Bricklayer
- Tile Setter
- Drywaller and Ceiling Tile Installer
- Ironworker
- Boilermaker
- Pipefitter and Steamfitter
- Sheet Metal Worker
- Heavy Equipment Operator
- Automotive Mechanic and Technician
- Electrical and Electronics Installers and Repairers
- Locksmith
- Landscaper
- Cabinetmaker
- Upholsterer
- Plasterer
- Insulation Installer
- Industrial Maintenance Mechanic
- Elevator Mechanic
- Stonemason
- Building Inspector
- Solar Photovoltaic Installer and Technician
- Wind Turbine Technician
- Janitor and Building Cleaners
- Scaffolder
- Telecommunications Technician
- Line Worker
- Appliance Repair Technician
- Building Maintenance Worker
- Arborist
- Pest Control Worker
- Sign Maker
- Furniture Finisher
- Public Works Inspector
- Glassblower
- Hazardous Material Removal Worker
- Aircraft and Avionics Equipment Mechanics and Technician

EXPLORE

Trade Jobs

CAREER EXPLORATION

Pick 2-3 jobs that interest you from the list of career examples. Write them down.

- ○ _____
- ○ _____
- ○ _____

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How could you make an impact in the world with these jobs?

EXPLORE

Trade Jobs

Powerful Geography

APPLYING GEOGRAPHY

Trade Jobs

Electricians use geographical knowledge to understand local electrical codes and regulations, assess power distribution systems, and plan the installation of electrical wiring and equipment based on regional geographic requirements.

Plumbers apply geography to assess local building codes, understand the terrain's impact on drainage systems, and plan plumbing installations that consider the regional climate and geological characteristics.

HVAC technicians utilize geography to assess climate variations, understand local heating and cooling demands, and install heating, ventilation, and air conditioning systems that are tailored to the specific geographic conditions of an area.

Carpenters apply geographical knowledge to understand local construction practices, assess regional building materials, and adapt woodworking techniques to meet the architectural styles and environmental conditions of different geographic regions.

Masons use geography to assess the properties of local building materials, understand regional climate variations, and apply construction techniques that are suitable for the specific geological and environmental conditions of a given area.

Welders apply geographical knowledge to understand local safety regulations, assess environmental factors that may affect welding processes, and implement welding techniques that adhere to the geographic standards and conditions of a particular region.

Automotive mechanics and technicians utilize geography to understand local driving conditions, assess terrain variations, and provide automotive services that consider the specific geographic demands and environmental factors of a particular area.

Roofers apply geographical knowledge to understand local weather patterns, assess climate variations, and install roofing materials that are suitable for the specific climatic and environmental conditions of a given geographic region.

Landscapers use geography to assess local soil types, understand regional plant varieties, and design landscaping projects that consider the geographic characteristics and environmental factors of a specific area.

Painters apply geographical knowledge to understand local weather conditions, assess the impact of climate variations on building exteriors, and select painting materials and techniques that are suitable for the specific geographic environment of a particular region.

EXPERIENCE Trade Jobs

Powerful Geography

MEET THE GEOGRAPHERS

"Air conditioners are a common home feature in today's modern world. [...] Although they are common, air conditioner styles and the way in which equipment is used varies widely from region to region.

Where am I? Common types of AC by area... In areas where cooling is only necessary a few times a year, window or wall units predominate, however in hotter, more humid climates, central AC is more common due to its ability to more effectively and efficiently cool homes.

- South, Midwest & West: Central air conditioning prevails by far over window units.
- North: Room air conditioners are more common, though not by a huge percentage, with approximately 54 percent of homes using wall units and 44 percent using central AC.

Is it hot in here? How usage is affected by region... Though southern homeowners are almost twice as likely to utilize AC than all other regions, they are least likely to use a programmable thermostat to operate it. Western and northern regions, however, are most likely to use programmable thermostats, reaping the benefits of reduced overall cooling costs thanks to the automatic and routine cycling down of the unit when more intensive cooling is not needed.

Is your home a senior citizen? Your neighborhood's age also drives variation... While about 91 percent of homes built since 2000 include central AC that utilizes ductwork, for homes built before 1940 that number drops to 50 percent. Unlike newly constructed neighborhoods where the addition of central AC is easier and costs financed into the mortgage, retrofitting older homes typically require out of pocket investments for the addition of ventilation systems and ductwork – and the construction needs necessary to work them into the structure.

Is your AC a dinosaur? New HVAC efficiency standards vary based on your region... Due to the role your geographic region plays in your air conditioning needs, and subsequently energy usage, the U.S. Department of Energy upgrades AC efficiency standards for residential and commercial equipment. Depending on your region, Seasonal Energy Efficiency Ratio (SEER) standards for new AC purchases and upgrades vary by region: **NORTH** - ME, VT, NH, MA, RI, CT, MY, MJ, DE, MD, PA, WV, OH, IN, MI, IL, WI, MN, IA, MO, ND, SD, NE, KS, CO, WY, MT, ID, UT, OR, WA. **SOUTH** - FL, GA, AL, MS, LA, TX, OK, TN, NC, SC, KY, VA. **SOUTHWEST** - CA, AZ, NV, NM."

- AireServ (2015). How Geography Affects Your AC. Link to Post.

Trade Jobs

"As we embrace a new year, evaluating upcoming industry trends remains crucial to any company's success. This evaluation involves understanding what customers valued highly in the prior year and forecasting upcoming preferences. We acknowledge that these trends can be influenced by the persistent escalation of business expenses – notably within the construction sector – driven by technology and innovations, commercial and residential market shifts, material trends and regional trends.

In the roofing sector, company leaders must anticipate and address these changes by staying aware of the expected developments in 2024. This means staying informed about the most sought-after roof types and designs, their regional and climatic variations, strategies for maintaining cost efficiency and plans for innovative roofing product development."

- Judd Haag (2024). New Roofing Trends for 2024. Roofing Contractor Website. Link to Article.

"For the first time, IRE will present a roofing roundtable session comprised of industry veterans from the commercial and residential roofing markets and key representatives from multiple roofing suppliers. Attendees will have the opportunity to join fellow roofing contractors to discuss first-hand how running a roofing business isn't only about what happens on the roof."

- Art Aisner. IRE Roundtable: There's More to Roofing than Just the Roof. Roofing Contractor Website. Link to Article

"Calculating the average licensed plumber salary involves taking into account several key factors that contribute to the considerable variation in earning across different regions. The national average plumber salary provides a useful starting point, but it can significantly differ from state to state due to a plumber's education and experience level, any additional skills they may have, and geographic location. The average cost of a plumber also varies by state. In areas with high demand for plumbing services and a higher cost of living, plumbers tend to earn more. For instance, plumbers in California or New York often have higher salaries compared with those in less densely populated or lower-cost states.

While core plumbing skills are essential, plumbers who possess supplementary skills are often more versatile, competitive, and in demand in the job market, which ultimately leads to higher earnings. Includes: **Diversification of services:** Plumbers with additional skills, such as welding, HVAC expertise, or knowledge of sustainable plumbing practices, can offer a broader range of services. [...]. **Increased demand:** As technology and environmental concerns continue to shape the plumbing industry, skills related to energy-efficient systems and eco-friendly solutions are becoming increasingly sought after. Plumbers with expertise in these areas are well-positioned to meet the growing demand for green plumbing solutions [...]. **Problem-solving:** Additional skills often enhance a plumber's problem-solving abilities. A plumber who can address complex issues, such as troubleshooting sophisticated HVAC systems or implementing smart water-saving technologies, is seen as an invaluable resource. **Safety and compliance:** [...] Clients are willing to invest more in plumbers who prioritize safety and compliance. **Advanced certifications**. **Niche markets**. Plumbers with specialized skills can tap into niche markets, such as medical gas systems, industrial plumbing, or luxury home installations.

Geographic location plays a crucial role in determining the average hourly rate for a plumber. Plumbers' earnings can vary significantly from one region to another due to several key factors. **Cost of living:** The cost of living in a given area has a direct impact on plumber salaries. **Market demand:** The demand for services [...] can differ widely depending on the region. Areas experiencing rapid population growth, construction booms, or a high density of commercial enterprises often have a greater need for plumbing services. **Regulations and licensing:** Licensing requirements and regulations for plumbers can vary by state or municipality. **Competition:** The level of competition among plumbers in a specific area can affect salaries. In highly competitive markets, plumbers may need to offer competitive rates to attract clients. In regions with fewer plumbers, professionals may be able to charge higher rates for their services. **Climate and seasonal variations:** Climate and weather conditions can also impact the need for plumbing services. In regions with harsh winters, plumbers may be busier dealing with frozen pipes and heating systems, potentially leading to higher salaries during certain seasons. **Local economic factors:** The overall economic health of a region can influence salaries. In areas with a strong economy and a thriving construction industry, plumbers may find higher-paying job opportunities, since more projects are available."

- Katie Flannery (2023). How Much is the Average Plumber Salary? Bob Vila Website. Link to Article.

EXPERIENCE

Trade Jobs

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EXPAND

Trade Jobs

TAKE IT GLOBAL

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Trade Jobs

Latin America and Caribbean	**Europe**
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EXPAND

Trade Jobs

MAKING CONNECTIONS

HOW IS THIS CAREER IMPACTED BY THESE THEMES?
HOW DOES THIS CAREER IMPACT THESE THEMES?

Trade Jobs

Physical Geography	**Human Geography**
Places and Region	**Environment and Society**

EXPLORE *Sciences*

Powerful Geography

CAREER EXAMPLES

Physical Sciences

Architectural Engineer: Integrates principles of engineering and architecture to ensure the structural integrity and functionality of buildings.

Environmental Engineer: Focuses on designing structures that are environmentally friendly and comply with environmental regulations.

Acoustical Engineer: Specializes in the science of sound and helps design buildings with optimal acoustics and noise control.

Civil Engineer: Works on the design and construction of infrastructure projects such as roads, bridges, and buildings.

HVAC Engineer: Designs heating, ventilation, and air conditioning systems for buildings, incorporating principles of thermodynamics and fluid mechanics.

Lighting Designer: Incorporates the science of lighting and optics to create efficient and aesthetically pleasing lighting systems for buildings.

Building Physics Consultant: Analyzes the impact of the physical environment on buildings, focusing on aspects such as thermal performance, energy efficiency, and indoor air quality.

Sustainable Design Consultant: Applies principles of sustainability and environmental science to create eco-friendly building designs and promote green building practices.

Structural Engineer: Utilizes principles of physics and materials science to design and analyze the structural integrity of buildings, ensuring their safety and stability.

Building Automation Specialist: Implements advanced technological systems that control and monitor various building functions, such as lighting, temperature, and security.

Fire Protection Engineer: Utilizes knowledge of fire behavior and prevention to design fire protection systems and ensure the safety of buildings against fire hazards.

Building Materials Scientist: Conducts research on the properties of construction materials, contributing to the development of innovative and durable building materials.

EXPLORE *Sciences*

CAREER EXPLORATION

Pick 2-3 jobs that interest you from the list of career examples. Write them down.

- ○ _____
- ○ _____
- ○ _____

Where (location) would you need to go to pursue (or get) these jobs?

What are some of the qualifications (for example: skills, degrees, knowledge) you need to have these jobs?

How could you make an impact in the world with these jobs?

EXPLORE Sciences

Powerful Geography

APPLYING GEOGRAPHY

Physical Sciences

Structural engineers use principles of physics and materials science to ensure that buildings and other structures can withstand the forces they are subjected to. They calculate loads, design structures, and assess the integrity of materials to ensure the safety and durability of buildings.

Materials science includes understanding the properties of various construction materials, such as concrete, steel, and timber, is crucial in ensuring their suitability for different building applications. Knowledge of the chemical and physical properties of materials is essential for their selection, testing, and implementation in construction projects.

Environmental scientists and engineers contribute to building projects by evaluating the impact of construction on the environment. They assess potential environmental risks, ensure compliance with environmental regulations, and recommend sustainable building practices to minimize the project's ecological footprint.

Geotechnical engineers apply principles of soil and rock mechanics to assess the stability of building sites. They conduct soil testing, analyze subsurface conditions, and provide recommendations for foundation design to ensure the structural integrity and safety of buildings.

Building physicists analyze the behavior of buildings in response to various physical forces, such as heat, light, and sound. They contribute to the design of energy-efficient and environmentally sustainable buildings by optimizing factors such as thermal insulation, lighting, and acoustics.

The application of scientific principles in **construction technology** involves the use of advanced machinery, tools, and techniques to improve construction efficiency and productivity. This includes the implementation of automation, robotics, and innovative construction materials to streamline the building process.

Architects often incorporate scientific principles of geometry, physics, and environmental science into their designs. They utilize these principles to create aesthetically pleasing, functional, and sustainable structures that adhere to building codes and standards while considering factors such as lighting, ventilation, and spatial dynamics.

EXPERIENCE Sciences

Powerful Geography

MEET THE GEOGRAPHERS

Physical Sciences

"Mass timber continues to be a growing trend for buildings as teams seek faster, more sustainable projects with less environmental impact. Wood requires the least amount of energy to produce in comparison to other building materials such as steel and concrete; it's also renewable and sequesters carbon. The carbon dioxide in the air is extracted and carbon is transformed and stored in the wood fiber, taking a greenhouse gas out of the atmosphere, Oregon-based Western Wood Structures mass timber sales specialist Wilson Antoniuk said. [...]. Mass timber has its place, Antoniuk said, such as for projects that traditionally featured concrete and steel. These may include office buildings, multifamily buildings, schools or university buildings. Mass timber does not make sense, however, in standard homes because the price point is not attainable for most people, he said. 'The mass-timber products all provide fire resistance due to the thickness of the members; one hour of fire resistance rating can be achieved per 1.8 inches of wood thickness,' Antoniuk said."

- Hilary Dorsey (2024). Mass Timber Products Gain Momentum in Building Industry. Finance and Commerce Website. Link to Article.

"The building's original design [...] has also been the subject of scrutiny. The same 2018 report highlighted a "major error" in the design of the 1981 building. 'The main issue with this building structure is that the entrance drive/pool deck/planter waterproofing is laid on a flat structure,' the report read. 'Since the reinforced concrete slab is not sloped to drain, the water sits on the waterproofing until it evaporates. This is a major error in the development of the original contract documents.' [...]. The report proposes that the design of structural columns, which were too narrow to accommodate enough steel reinforcement, would have caused builders to make ad-hoc decisions which may have weakened the structure. According to the report, builders would have faced a choice of either overloading the columns with steel which would have accelerated corrosion, or inadequately attaching floor slabs to the columns."

- Niall Patrick Walsh (2021). A House of Cards: The Miami Condo Collapse Exposes a Dehumanized Mindset in the Built Environment. Archinect. Link to Article

"Federal investigators have released their preliminary findings into the collapse of the Champlain Towers South condo building in Surfside, Florida. As reported by The New York Times, the building's pool deck contained a "severe structural deficiency," with construction in some areas failing to meet both building codes and its original design parameters. The investigation is being led by the National Institute of Standards and Technology and has so far included witness interviews, a review of historical records, tests on building materials, and the analysis of models for structural performance. The original design and construction of the building have been examined, as have any renovations and repairs in the years since. The potential for corrosion, ground settlement, and vibrations from nearby construction to contribute to the collapse has also been examined. [...] According to The Times, the pool deck also contained steel reinforcement buried deeper in the concrete than initially designed, planters that were heavier and more extensive than originally designed, layers of sand and paving stones added at a later date, and signs of corrosion in some parts of the steel reinforcement."

- Niall Patrick Walsh (2023). Collapsed Surfside condo tower had 'severe strength deficiency' in pool deck, preliminary findings say. Archinect. Link to Article.

"Wind power is expanding globally. Simultaneously, a growing number of conflicts against large-scale wind farms are emerging in multiple locations around the world. As these processes occur, new questions arise on how electricity from wind is being generated, how such energy is flowing within societies, and how these production-flows are being shaped by specific power structures. [...] explores the expanding geography of wind energy conflicts by analyzing 20 case studies from across the Americas, Africa, Asia and Europe. Based on the Environmental Justice Atlas database, it reflects on how land pressures and patterns of uneven development emerge as two features of the current expansion of wind farms. [...] In addition to the claims of 'landscape' and 'wildlife protection' addressed by the existing literature, this study sheds light on the rural/peripheral contexts where opposition emerges through the defense of indigenous territories, local livelihoods and communal development projects. The study contends that these 'emerging storylines' embrace an environmental justice perspective when challenging the socially unequal and geographically uneven patterns reproduced by the ecological modernization paradigm."

- Sofia Avila (2018). Environmental Justice and the Expanding Geography of Wind Power Conflicts. Sustainability Science, 13: 599–616. Link to Article.

EXPERIENCE

Sciences

FIND LOCAL GEOGRAPHERS

***INSTRUCTIONS* CONDUCT AN ONLINE SEARCH TO FIND LOCAL INDIVIDUALS WHO DO THE JOB YOU ARE INTERESTED IN.**

WRITE DOWN THEIR NAME, JOB TITLE, AND USE THE LINES TO WRITE DOWN WHAT THEY DO

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Job Title: _____

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***EXTENSION* IF POSSIBLE, TRY AND INTERVIEW THE PERSON AND ASK THEM HOW THEY USE GEOGRAPHY! WRITE YOUR FINDINGS IN THE OPEN SPACES**

EXPAND

Sciences

TAKE IT GLOBAL

FIND EXAMPLES OF THESE CAREERS IN DIFFERENT REGIONS

Physical Sciences

Latin America and Caribbean	**Europe**
Middle East and North Africa	**Sub-Saharan Africa**
Central Asia and Russia	**East Asia**
South Asia	**Oceania**

EXPAND

Sciences

Physical Sciences

MAKING CONNECTIONS

HOW IS THIS CAREER IMPACTED BY THESE THEMES?
HOW DOES THIS CAREER IMPACT THESE THEMES?

Physical Geography	**Human Geography**
Places and Region	**Environment and Society**

EXPLORE Technology

Powerful Geography

CAREER EXAMPLES

Technology

Building Information Modeling (BIM) Manager: Responsible for overseeing the implementation and maintenance of BIM software and processes for construction projects.

Construction Technology Manager: Handles the integration and management of technology solutions for improved construction processes and project efficiency.

Virtual Design and Construction (VDC) Engineer: Utilizes advanced software and technology to create virtual models and simulations of construction projects for planning and coordination.

Building Automation Technician: Installs, maintains, and troubleshoots automated systems within buildings, such as HVAC controls, lighting systems, and security systems.

Sustainability Technology Specialist: Implements technology solutions focused on sustainable building practices, including energy-efficient systems and renewable energy integration.

Smart Building Engineer: Manages the deployment and maintenance of smart building technologies, including IoT devices, sensors, and automation systems for enhanced building performance.

Construction Robotics Engineer: Works on the development and implementation of robotic systems for tasks such as 3D printing, automated construction, and prefabrication in the building industry.

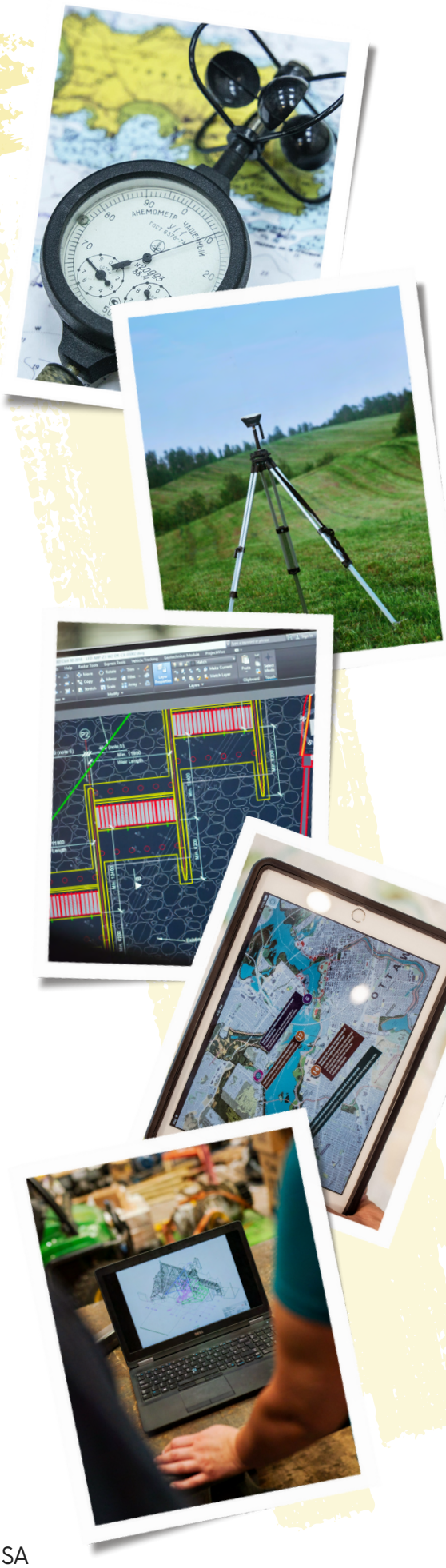
Construction Software Developer: Designs and develops specialized software solutions tailored for construction management, project scheduling, and cost estimation.

Building Systems Integrator: Integrates various technology systems within buildings, ensuring seamless communication and functionality between different components such as security, lighting, and HVAC systems.

Building Energy Management System (BEMS) Analyst: Analyzes and optimizes energy usage within buildings by utilizing advanced software systems that monitor and control energy consumption.

Sustainable Materials Researcher: Conducts research on innovative building materials and technologies that promote sustainability, energy efficiency, and environmental conservation in the construction industry.

Construction Data Analyst: Utilizes data analytics and visualization tools to analyze construction data and provide insights for improved decision-making and project management.



EXPLORE

Technology

CAREER EXPLORATION

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EXPLORE Technology

Powerful Geography

APPLYING GEOGRAPHY

Technology

Utilizing **GIS** to analyze geographical data related to construction sites, including topography, soil composition, and environmental factors, to inform site selection and design decisions. Using geographic technology to **assess potential construction sites**, considering factors such as accessibility, natural hazards, and proximity to resources, to identify optimal locations for building projects.

Employing **3D mapping and surveying technologies** to create accurate and detailed representations of construction sites, facilitating precise measurements and enabling efficient project planning and design. Leveraging geographic technology to create **virtual models and simulations** of building projects, enabling stakeholders to visualize and understand the construction process, potential challenges, and final outcomes.

Conducting **site analysis using geographic data** to evaluate the suitability of locations for specific building types, considering factors such as sunlight exposure, wind patterns, and environmental impacts to optimize building design and energy efficiency.

Utilizing geographic technology to **assess the environmental impact** of construction projects, including analyses of land use, water resources, and ecological considerations, to ensure compliance with environmental regulations and promote sustainable building practices.

Geotechnical engineering applies geographic data analysis to evaluate soil stability, ground conditions, and geological features at construction sites, facilitating informed decisions regarding foundation design, earthwork, and slope stability.

Integrating geographic technology to optimize **construction logistics**, including transportation routes, material delivery schedules, and site access, to streamline the construction process and minimize operational inefficiencies.

Incorporating geographic data into BIM software to create detailed 3D models that integrate geographical information, enabling effective collaboration among architects, engineers, and construction professionals throughout the building lifecycle.

Using **geographic insights to identify and manage construction-related risks**, including natural disasters, geological hazards, and environmental vulnerabilities, to implement appropriate mitigation strategies and ensure the safety and resilience of building projects. Utilizing geographic technology to **monitor construction progress** and track project developments, enabling real-time data collection and analysis to ensure adherence to construction schedules and budgets.

Integrating geographic technology with **smart building systems** to enhance building automation, energy management, and facility monitoring, optimizing building performance and enhancing the overall occupant experience. Leveraging geographic data to support the implementation of **sustainable construction practices**, including green building initiatives, renewable energy integration, and environmentally conscious material sourcing, to promote eco-friendly and energy-efficient building solutions.

EXPERIENCE *Technology*

Powerful Geography

MEET THE GEOGRAPHERS

Technology

Richard Quodomine
Senior Lead GIS Analyst,
Department of Public Property,
City of Philadelphia
Link to Interview

"If you have a passion for a subject and a passion for mapping it, then you can be a geographer. I love transportation – buses, trains, etc. – so I would look at maps of transportation all day. When I learned I could turn that love into a career, I majored in it, graduated in it, and spent the majority of my career in it. [...] degrees are just paper unless you find an application that you want to do in life. And you then should seek every reasonable opportunity to bring geographic perspectives to whatever work you have. The first skill I use is the geographic organization of data. Almost all data in civil service has some kind of geographic component to it. That data should be clearly organized in a proper geodatabase and displayed in feature classes or tools that are accurate and timely. The second is the ability to be geographically holistic: public buildings are not separate from roadways are not separate from parks are not separate from public health! It is a mistake to not consider geographic interconnections and context."

"I am responsible for creating a blueprint for effective, multi-stakeholder economic development designed to assist the City of Wichita, Kansas in the development of robust partnerships to bring housing, infrastructure improvements, and economic vitality to distressed communities within the city. I will also be responsible for developing a national model on how to successfully utilize Opportunity Zones, a viable tool for effective community economic development work in urban communities across the U.S. [...] Geographic skills that are most often used in my work are: 1) Understanding of Scale – The ability to discern both the importance and relevance of scale in any analysis. As geographers, we should be keenly aware of how scale impacts both our perspective and analysis. I am often reminded of the relevance of scale in my work in local communities. 2) Geographic Information Systems (GIS) – Ability to utilize GIS as a tool for both the visual display of spatial phenomena as well as a tool of spatial analysis. Even if my position has not required its use, I utilize this software to enhance my own understanding of the communities I have served."

Angeline Johnson
FUSE Fellow, FUSE Corps
Link to Interview

"When a hailstorm pockmarks roofs across a region, the next thing you often see is roofers climbing ladders to perform an often perilous rooftop inspection. That pitched, slick stroll may become a thing of the past as companies like Roofer.com pioneer a new way to do the job. Founded in 2020, Roofer.com relocated its HQ from San Francisco to Arlington after acquiring Arlington-based Bearded Brothers Roofing & Restoration in 2022. The startup uses 'advanced AI algorithms and drone technology' to conduct roof scans. Its drones capture high-resolution photographs, which are then analyzed using computer vision. The result: Insights into areas of damage, the remaining life of the roof, and whether a repair or complete re-roofing job is needed."

- David Seeley (2024). North Texas-Based Roofer.com Raises $7.5M for Its Drones & AI-Based 'Modernized Roofing'. Dallas Innovates. Link to Article.

EXPERIENCE

Technology

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EXPAND

Technology

TAKE IT GLOBAL

FIND EXAMPLES OF THESE CAREERS IN DIFFERENT REGIONS

Technology

Latin America and Caribbean	**Europe**
Middle East and North Africa	**Sub-Saharan Africa**
Central Asia and Russia	**East Asia**
South Asia	**Oceania**

EXPAND

Technology

Technology

MAKING CONNECTIONS

HOW IS THIS CAREER IMPACTED BY THESE THEMES?
HOW DOES THIS CAREER IMPACT THESE THEMES?

Physical Geography	**Human Geography**
Places and Region	**Environment and Society**

EXPAND

Building Path

REFLECTIONS

WHAT IS GEOGRAPHY'S ROLE IN THE CAREER THAT YOU ARE INTERESTED IN AND ASPIRE TO BECOME? WRITE A SUMMARY.