Integration of Mobile and Cloud Technologies

For the Utility & Pipeline Industries

Construction and Design | Engineering and Operations | Integrity Management

NC STATE UNIVERSITY College of Natural Resources

Center For Geospatial Analytics | Industry Experience Program
Raleigh Division Team Leads

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About Us:

ProStar GIS service and mobile solution are offered as GIS as a Service 'GAAS™'. This approach enables clients to easily integrate their enterprise business systems and immediately enhance operations without substantial change or investment in current business practices. Our open GIS offers cloud, mobile and systems integration services that connect clients' enterprise systems with field operations so that both office and field personnel can visualize work flow processes in real time.

- Leverage OGC® Open Standards
- Real-time Connectivity with Field & Office
- Interoperable with Enterprise Systems
- Streamline Business & Workflow Processes
- Provide Precision & Qualified Location Data
- Easy Adoption & Low Cost Of Ownership
Industry Experience Program

**Hands-on Industry Geospatial Conversion & Database Modeling**

Students will build real-world working knowledge by contributing to live industry client projects in the utilities and pipeline industries leveraging ProStar’s Open GIS and mobile solutions that embrace OGC standards, including, but not limited to:

- Web Map Services (WMS),
- Web Feature Services (WFS),
- Web Coverage Services (WCS),
- Web Processing Services (WPS),
- Catalogue Service Implementation,
- Simple Feature Access for SQL,
- Geography Markup Language (GML),
- Encoding and Coordinate Transformation Services

[OGC logo](http://www.opengeospatial.org/)
Working with ProStar’s Transparent Earth® and PointMan® technologies, students will learn to build client specific geospatial platforms and create conflated views of applicable data sources and prepare these datasets so they can readily be viewed by both office and field personnel using mobile and cloud geospatial technologies.

Interested students should have some basic studies and knowledge around open source GIS and geospatial databases and standards (Postgres, PostGIS, OSGeo, etc.)

Students will work directly in one of ProStar’s local offices in the Triangle. Eligible students should be able to work physically from one of these offices as needed. Remote opportunities may be available in the future.
Traineeship Roles

- Assist in performing delivery, physical setup and implementation of geospatial projects and networks
- Assist in the maintenance of cloud data stores and interfaces
- Data Mining and performing Data Conversions to Geospatial formats
- Test new data sources, software, and custom client tools.
- Assist in the creation and implementation of standards for quality control of geographic data (metadata).
- Design, develop, and implement systems and databases for storing and accessing geospatial data on mobile and desktop devices.
- Standardize and define geographic data, and track need for data format conversion.
- Determine map content, appearance, and layout (layers and symbology for user interface) for maximum information with high usability.
- Manage collection, storage, analysis, and interpretation of geospatial data
- Perform and assist in data analytics and predictive modeling
Industry Challenges

- Departmental Communication Failures (Silos)
- Data Collection, Retention and Recall
- Inconsistent Safety Practices
- Availability of Procedures
- Accessing Associated Risks
- Tracking Materials
-Disconnected Processes
- Lack of Inspection Tracking
- Self and Third Party Auditing Gaps

- Inaccurate GIS and Asset Locations
- Missing Data
- Liability Concerns
- Inefficient Reporting
- Mitigation
- Costs
- Uncoordinated Scheduling Practices
- Asset Transfer Issues
Data Management & Recall

Through the development of a secure data network, data repository and data management system, precise asset location based field data can be gathered and stored using mobile electronic forms and uploaded to a secure data repository. With any computing device including laptops, tablets and smartphones, the precise location data and meta data (photos, video and voice) can be made available to all or selected stakeholders in real time, anytime.
Value of Mobile Technology

Mobile technology has evolved dramatically in the last decade. So much so, that it is difficult for the companies to identify what this means, and just how it can benefit the industry.

The oil and gas industry has been slow to capitalize on the vast benefits of mobile technology and still in large, depend on paper, binders, personalized PIM data sheets etc., to address data.
• Manage One Call Tickets
• Capture Routine Operation & Maintenance Activities using Electronic Forms
• New Construction Electronic Documentation Process
• Track & Time Stamp any Compliance Activities
• Right-of-Way Management
• Marketing & Business Tools
• Facilitate Pipeline Integrity
• Record and Document Regular and Special Activities
• Display Real-time Pipeline Flow Information
• Provide Mapcentric view to Manage any Incidence
Mobile eforms provide the ability to capture data in the field using mobile tablets that are connected to a data repository in the cloud and easily accessible to office personnel for QA and publication to personnel that need it.

*How it Works*

- Field Workers collect data and enter form information on mobile tablets.
- GPS records the location of all features.
- Data is synced with the Internal or External GIS.
- Company Personnel have access to map data based on roles and permissions.
- QA Office Clerk Reviews data in real-time.

**Collected Form Data**

- **Joint Number:** JT-009
- **Joint Length:** 59 ft
- **Joint Material:** Steel
- **Joint Specification:** 5LS – X56 – ERW, DSA
- **Joint Heat #:** 786945
- **Joint Owner:** Company: ABC
- **Joint Manufacturer:** IPSCO
- **Joint Supplier:** Franklin
- **Purchase Order #:** PO-09813
- **Load #:** Load - 6
- **Pipe Size:** 20 ”
- **Pipe W.T.** .219
- **Category:** II
Enhances safety and minimizes risks by providing historical and up-to-date data for construction, integrity and asset management

Employs communication and data standards to eliminate information silos

Greatly reduces dedicated resources required for the regulatory needs and provides an audit trail and brings transparency to the field

Simplifies the process of personnel, material and data tracking

Helps reduce a liability by proving due diligence

Provides a cradle to grave coverage of an asset

Substantially improves the value of an asset