Where Our National Security Begins...
St. Louis Area Working Group (SLAWG)

October 2017
Agenda

- Welcome & Introductions
- SLAWG Overview
- Saint Louis University (SLU) Briefings
  - Harris Stowe State University Briefings
- SLAWG Sub Committees
- SLAWG Strategic Engagement Sub Committed Update
- SLAWG Calendar of Events
- Takeaways
- No-Host Social
Introductions
What is the SLAWG?

Industry, Government, Academic and Community partners self-organizing to discuss matters of mutual concern.

A WG is...
- Volunteer-based
- Strategic in nature
- Objective (pros & cons)
- Open to participation
- Company-agnostic
- Action and progress oriented
- Focused on goals/outcomes

A WG is not...
- Sponsored by the government
- Restricted in participation
- Proprietary
- A pursuit/capture/networking venue
- A shaping & positioning opportunity
- A venue to recommend products/services
- An open ended discussion forum

Geospatial Expertise in St. Louis and surrounding regions is of Strategic Importance
SLAWG Participants

Federal and Local Government, Small and Large companies, Academic Institutions and Community partners

- NGA
- City of St. Louis
- Project Connect
- SLATE
- St. Louis University
- Univ of Missouri / CGI
- Ball Aerospace
- Harris
- Washington University
- Boundless
- BAE Systems
- ESRI
- Mantech
- NJVC
- Urthecast
- T-Kartor
- Accenture
- Chameleon
- Integrated Services
- Geodata IT
- Leidos
- InSequence
- CSRA
- Tera4D Systems
- CEdge
- General Dynamics
- Flight Safety
- Planet
- Continental Mapping
Saint Louis University (SLU) Presentations
Saint Louis University
Geospatial Research, Training, and Innovation

October 25, 2017

Mark Brickhouse, Ph.D.
Advisor for Geospatial Research and Training
SLU’s Research Growth Plan

Grow SLU into the world’s leading Jesuit research university

• Grow the Scale & Eminence of SLU Research

• Build Areas of Research Distinction

• Research with Relevance
SLU Goals in Geospatial

• Build distinctive strengths in geospatial research, training, and innovation

• Contribute to establishing St. Louis as a national geospatial hub

• Apply geospatial insights to regional and global challenges

• Partner with innovators, industry, federal agencies, and universities
Background

• CRADA with NGA on UAVs and Remote Sensing

• Formal and informal training of NGA staff

• Strengths in Aviation Engineering, GIS, Earth & Atmospheric Sciences

• Application of geospatial techniques to research in agriculture, water, environment, urban studies and health outcomes

• Collaborations with Boeing, DoE, NASA

• Engagement with NGA leadership
SLU Geospatial Research Cores: Technology, Analytics and Policy

• Remote Sensing, Mobile Platforms and Sensors
  • Wasit Wulamu, Ph.D. – Multimodal Satellite and Unmanned Aerial System (UAS) Remote Sensing and Sensors
  • Michael Swartwout, Ph.D. - Design and Operation of Autonomous Small Spacecraft
  • Saul Robinson, M.M.E. - Manned aircraft, aviation safety research

• Machine Learning, Artificial Intelligence, and Big Data Analytics
  • Flavio Esposito, Ph.D. - Machine Learning, Virtualization, Edge Computing
  • David Letscher, Ph.D. – Topological Data Analysis

A Giant field phenotyping robot and a multirotor UAS, both are integrated with hyperspectral, thermal, RGB and LiDAR sensors.
SLU Geospatial Research Cores: Technology, Analytics and Policy

• Imaging Technology and Geospatial Infrastructure
  • Jeff Ma, Ph.D. - Feature Selection, Artificial Intelligence
  • Srikanth Gururajan, Ph.D. - Virtual Reality Based Remote Drone Operations

• Policy and Ethics
  • Nori Katagiri, Ph.D. - Defense Policy, Irregular Warfare
  • Ness Sandoval, Ph.D. - Urban sociology, demography, spatial demography and statistics
SLU Geospatial Research Cores: Human Geography

- **Biosecurity and Health Informatics**
  - Michael Elliot, Ph.D. - Biostatistics, Health Risk Appraisals
  - Enbal Scachem, Ph.D. - Geospatial Patterns of Health Behaviors and Outcomes
  - Soumya Chatterjee, Ph.D. - Geospatial Patterns of Tuberculosis Treatment and Outcomes

- **Urban Health, Education, Crime, Economic Development**
  - Ness Sandoval, Ph.D. - Computation Spatial Statistics and Social-Environmental Synthesis
  - Sarah Coffin, Ph.D. - Geospatial Urban Planning and Development
  - Ronaldo Luna, Ph.D. - Geospatial Civil Engineering
  - Jalil Kianfar, Ph.D. - GIS for traffic analysis and engineering applications

Household Food Insecurity Rate by County, 2015
SLU Geospatial Research Cores: Human Geography

- Environmental and Food Security on Global/Regional Scale
  - Liz Hasenmueller, Ph.D. - Transport of Contaminants in Soil and Water
  - Ben DeFoy, Ph.D. - Geospatial Trends in Air Pollution
  - Wasit Wulamu, Ph.D. - Remote Sensing of Food and Water Security
  - Ellen Barnidge, Ph.D. - Geography of Food Security
  - Zaitao Pan, Ph.D. - Regional Climate Response, Agricultural Disease Forecasting
  - Allison Miller, Ph.D. - Adapting Perennial Crops for Climate Change
Geospatial Degrees and Training

• Certificate in GIS Science (Undergraduate and Graduate)

• M.S. in GIS Science

• M.S. in Computer Science in Software Development

• Ph.D. in Environmental Science and GIS

• Center for Workforce Development – Cyber Security, Coding

• School for Professional Studies – Security & Strategic Intelligence

• Pursuing USGIF accreditation for geospatial intelligence certificate program
Integrated & Applied Sciences (IAS): An Interdisciplinary Science Ph.D.

• The program enables participation by science departments across campus with interests in interdisciplinary problems.

• Program Director: Paul Jelliss, Ph.D.

• Current IAS Tracks:
  • Environmental Science and GIS
  • Sustainability Science
  • Nanomaterials and Condensed Matter Physics
  • Biology, Bioinformatics, or Integrated Geospatial Biology
  • Chemistry

• Developing new remote sensing-based concentrations tailored to external research needs and collaborations, such as NGA
Path Forward

- Coordinate faculty engagement in the SLU Geospatial Enterprise
  - Identify strategic research capabilities, resources and potential faculty hires

- Pursue new geospatial training opportunities
  - Support training initiatives with NGA, pursue USGIF accreditation

- Identify new geospatial research opportunities
  - Identify funded research opportunities for SLU’s Geospatial and Human Geography capabilities

- Identify new funding sources, partners and stakeholders
  - Support new, broad-scope CRADA with NGA, and participate in the new USGIF Saint Louis Area Working Group (SLAWG)

- Pursue outreach and community engagement
  - Support community engagement with the N2W campus development and construction

- Establish new geospatial research and training infrastructure
  - Invest in new centralized geospatial data archive and data analytics capability
ACIC DMAAC NIMA NGS

Time Line

• 15 June 1943 Colonel H. Arnold Karo (AAF Reg 95-4 17 Feb 43) established

• Army AF separation 21 Feb 1951 chart plant had a history

• Early 1950 WU GI Bill Engineering School Millbrook trailers

• 1959 air photo interpretation Geology and Geography
• Late 1950’s-Mid 1960’s ACIC WU Engineering Bill Heidbreder
• Mid 1960 SLU Masters in Cartography
• Patrick Hogan Lee Opime
• 1967 U of I program Dennis Moleman and Gary Higgs 63FF
• Professional paths parted I became an academia eventually returned to SLU Stupp GIS Lab
• Lab out reach
Acceptance of Professional Development Sequences as Reasonable and Moderate Extensions

A professional development sequence is a set of courses that leads to mastery of the content in a sub-field of an existing academic major and provides practicing professionals exposure to new knowledge or practical techniques. The professional development sequence requires no more than 12 semester hours. Sequences will be limited to the post-baccalaureate level and require that applicants be matriculated, i.e., meet all admission criteria for their class status. Students completing the requirements of the sequence are provided with a verification of completion by the university offering the sequence.

Professional development sequences should be submitted to the Board of Higher Education staff with a request that they be accepted as reasonable and moderate extensions of existing programs. Professional Development Sequences will not be included in the Board of Higher Education's Program Inventory and will not be separately identified in data reporting systems. However, additions and deletions of Professional Development Sequences should be reflected in the System's "Annual Report on Program Additions and Eliminations".

Because professional development sequences are not listed in the Board of Higher Education's Program Inventory and do not lead to the award of a degree that is included on the Board's Degrees Awarded Survey (Table 2), students enrolled exclusively (i.e., are not concurrently pursuing a related degree program) in professional development sequences should be considered non-degree seeking students and should be reported as such on the Board of Higher Education's Fall Enrollment Survey.
MEMO

To Mary Damahidi

From Gary Higgs

Subject NIMA Visit

December 101998

After you left, the meeting continued for some time. The general consensus that I believe emerged was that there is mutual benefit and therefore an interest in working together. However, there are many details to be worked out between the interested parties: NIMA, Integraph (their contractor), and St. Louis University.

My sense of where it stands now is that NIMA is going to start an in-house training program early in 99. Integraph is going to do all or most of the training. NIMA wants three things from St. Louis University:

- The creation of a certificate program in Spatial Analysis or GIS and,
- A mechanism to grant academic credit towards this certificate in Spatial Analysis or GIS to graduates of their in-house program upon the condition of
  1) their (the students) application, and formal request to the certificate program, and
  2) the demonstration of a competency equivalent to 6 hours of education in classes in the certificate curriculum through a proficiency examination and project.

Our (St. Louis U) job at this point, as I understand it is to design and create a certificate program, and provide the oversight and input as agreed upon, if we do come to an agreement with NIMA.

What I would like to see (if such an agreement comes about) is a notable involvement of the University facilities and personal in the delivery of the training product to NIMA. I think this would make it easier for the university to meet its accrediting constraint in terms of the educational aspect of granting academic credit. I don’t know how NIMA or Integraph feel about this but I would like to make this case to them.

St. L. U. might allow credit of NIMA training as part of a plan of study for a St. L. U. certificate or degree.
Where are we Today

• University of Missouri MSDIS, Geography, Spatial security certificate.
• After August meeting class discussion......
Where are we Today

• We’ve have been at this a long time
• We have tried several approaches
• Universities and faculty can’t do it by themselves
• we need and integrator
SLAWG Sub Committees
Strategic Engagement Sub Committee Update
SLAWG
Charter, Mission & Objectives

Charte r:
– Bring together professionals from the government, military, industry, academia and community to create lasting educational and community pathways to geospatial degrees, certifications and/or careers in the greater St. Louis area and surrounding regions

Mission:
– Support or build new geospatial centric pipelines that integrate and amplify existing NGA efforts designed to educate and train individuals in geospatial tradecraft
– Grow and sustain a populace within St. Louis and surrounding regions that possess the necessary geospatial skillsets to quality for and fill existing and future NGA or geospatial industry analytic and management careers

Objectives:
– Improve geospatial and geographic literacy in the greater St. Louis area and surrounding regions
– Integration with STEM and/or other similar programs
– Introduce and/or advance Geospatial curriculum in the K through 12th grade levels
– Create engagement strategy between greater St. Louis community and NGA
– Broaden engagement with St. Louis area and surrounding region universities, colleges and community colleges
Strategic Engagement Sub Committee

Objective: Create engagement strategy between greater St. Louis community and NGA

Deliverables and Actions:
• Deliver Strategic Roadmap
• Guide Implementation with Respective St. Louis community & NGA Stakeholders to include:
  ❖ Develop SLATE/NGA Messaging
  ❖ Develop Training Curriculum
  ❖ Hold GEOINT Awareness Workshops
  ❖ Hold Coaching Sessions to help tailor college coursework pursuits
  ❖ Provide assistance to College Students with Student Internship Applications
  ❖ Hold Resume Building Workshops
  ❖ Participate in SLATE Career Fairs

Sub-Committee Co-Chairs:
  Dr. Alice Prince, Ed.D., Executive Director, St. Louis Agency on Training and Employment (SLATE)
  &
  Dr. Odean Serrano, NGA Outreach Liaison for Academia, Innovation Hubs & Research Institutes

Sub-Committee Members:
  Erica Henderson - Promise Zone Director
  Jay Watson - Project Connect Manager
  Dara MEskridge - Choice Neighborhoods, Urban Strategies Senior Project Manager
  Otis Williams - SLDC Executive Director
  Russell Halliday - SLDC Program Manager
  Isa Reeb - SLDC Project Connect Coordinator
  Steve Thomas – USGIF/SLAWG Chair
St. Louis Community & NGA Engagement Strategy Framework

Structure based on pre-defined SLATE Tracks:
- Track 1: Workforce Development
- Track 2: Education
- Track 3: Construction & Entrepreneurial

Harmonized with existing NGA Programs

Plot Roadmap to Depict Path for *Sustained* Actions & Implementation

Involves Four Major Milestones for Path to Employment
- St. Louis Community / NGA Engagement Messaging
- Curriculum Development/Training
- Employment Preparation Workshops
- Hiring
Track 1: Workforce Development (Pre-College; 2/4 Year University Graduates; Post Grad)

Track 2: Education (K-12, College Preparatory)

Track 3: Construction & Entrepreneurial (Journeyman, Small Business Start Ups)
St. Louis Community & NGA Engagement Strategy FY 18 Roadmap (SLATE Campaign: Year of NGA)

Workforce Development (2 Year, 4 Year University Graduates)

- Convene GEOINT Industry Partners
- Formulate 2018 Messaging

Jan 2018

- MESSAGING: SLATE - Year of NGA
  - FY 18 Kicks off SLATE Year of NGA
  - NGA will assist with SLATE Messaging
  - NGA will advertise partnership

- CURRICULUM DEVELOPMENT/TRAINING
  - NGA Defines Coursework
  - USGIF Refines Existing Training Plans

- EMPLOYMENT PREPARATION WORKSHOPS
  - NGA Holds workshops for Student Interns to prepare applications

- HIRING
  - NGA Supports SLATE Hiring Events (Min 4 X Per Year)
Two SLAWG Sub Committees have been formed

- Strategic Engagement Sub Committee
- Catalog of Resources Sub Committee

Additional Sub Committees are needed to develop/address the following

- SLAWG Informational Materials
  - Brochure, Slide Show, Video, etc
- K-12 Educational Pipeline/Pathway
  - Elementary, Middle School, High School
- Community College Pipeline/Pathway
- University Pipeline/Pathway
  - Undergraduate, Graduate
- Internship Pipeline/Pathway
  - High School, College
- Entrepreneur Pipeline/Pathway
- Security Clearance Pipeline/Pathway
SLAWG Calendar of Events

30 Day Outlook
- Nov 1, Project Connect Open House, Gateway Middle School, 1200 N. Jefferson Ave
- Nov. 13-17, USGIF’s GEOINT Community Week/Geography Awareness Week
- Nov 15, USGIF GIS Day
- Nov 15, GeoPlunge Tournament

60 Day Outlook
- Nov 29, SLAWG Meeting, TBD
- Dec 20, SLAWG Meeting, Cortex

90 Day Outlook
- Jan 31, SLAWG Meeting, TBD
Takeaways

• All members to consider how they can support any of the various sub committees and which they would like to join

Review Action Items
Next Meeting

- Next SLAWG Meeting
  - Wednesday, Nov 29, 2017 from 3pm to 5pm CT
    - Location TBD
  - Notional Meeting Agenda
    - Sub Committee Status Briefs
      - Reporting Back for Existing Sub Working Groups and/or Action Teams
      - New Sub Working Groups and/or Action Teams
Contact Info & Additional Information

SLAWG Chairman

- Steven Thomas: Sthomas@ball.com (314) 312-8122
- Andy Dearing: Adearing@boundlessgeo.com (636) 487-1388
- Justin Bennett: Justin@geodatait.com (217) 390-8085
- SLAWG Email: SLAWG@usgif.org

USGIF

- Camelia Kantor: Camelia.Kantor@usgif.org (703) 793-0109 ext. 112
- Justin Franz: Justin.Franz@usgif.org (703) 793-0109 ext. 111
- Lindsay Mitchell: lindsay.mitchell@usgif.org (571) 392-7217

Websites

- USGIF Website: http://usgif.org/
- SLAWG Website: http://usgif.org/community/Committees/SLAWG
Hosted Social

Boileau Hall St. Louis University