Computer Science Meets Foreign Policy

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Nov. 2019
US Dept of State and USAID Executive Branch

**DOS Mission:** To lead America’s foreign policy through diplomacy, advocacy, and assistance by advancing the interests of the American people, their safety and economic prosperity.

**USAID Mission:** To lead the USG’s international development and disaster assistance through partnerships and investments ...

- **Cast of characters**
  - Political appointees
  - Foreign Service Officers
  - Civil servants
  - Fellows
Jefferson Science Fellowship
National Academies

- Science and engineering advisors for the State Dept and USAID
  - 1-yr fellowships for tenured professors
  - 2019-2020: State (7) USAID (4)
- Salary/benefits paid by home university
  - Variety of arrangements
  - Living allowance (per diem), small travel budget
- My cohort
  - 3 CS, 1 chemist, 2 earth science, 1 physicist, 1 botanist, 2 engineers, 2 MDs, 1 veterinarian

sites.nationalacademies.org/pga/jefferson/
The Process

• Applications and institutional MOU due Oct. 31
  – Statement of interest (2 pages)
  – Essay and briefing memo
  – Letters of recommendation

• Interviews in January
  – Ability to communicate succinctly and politely
  – Can you explain your ideas to non-scientists?

• Fellow selections: Late January

• Term: August to August

• Security clearances are an issue
Past CS Jefferson Fellows

• John Savage: Brown University (2009-2010)
• Stephanie Forrest: Univ. New Mexico (2013-2014)
• Kannappan Palaiappan (Pal): Univ. of Missouri (2013-2014)
• Margaret Martonosi: Princeton Univ. (2015-2016)
• K.P Subbalakshmi (Suba): Stevens Inst. of Technology (2016-2017)
Why me?

• Obligation to participate
  – CS issues colliding with society and policy
  – Technical expertise in DC dominated by military and intelligence mind set

• The research case
  – Modeling large-scale cybersecurity interventions
Example Placements

• State:
  – Communication and Information Policy office (CIP)
  – Intelligence and Research Bureau (INR)
  – Coordinator for cyber Issues (S/CCI)

• USAID
  – Cybersecurity capacity building
  – Development
Communication and Information Policy
Reports to Economics Bureau

• Multi-lateral fora: ITU, OECD
  – Spectrum allocation
  – Technical standards (ITU-T)
  – Capacity building
• Bi-lateral relationships
• Internet governance
• Emerging computing technologies
  – Big data, IPV6, 5G, AI, Twitter outages, blockchain
• Safe Harbor, MLAT
Example Activities

• Technical explainer
• Review documents
  – The clearance process
• Attend meetings
• Write position/negotiating documents
• Represent USG in international meetings
• Participate in interagency processes
• Write speeches
My year at State
2013-2014

• Who should control the Internet?
  – IANA transition
  – US strategy for intl. negotiations (ITU, OECD, etc.)

• Privacy and surveillance
  – Data localization
  – The Podesta Report

• Cyberwarfare and economic espionage
  – Zero-day exploits
  – Norms in cyberspace, attribution

• Spam and the global south
Research Outcomes

• Spam and botnet takedowns \((\text{ACSAC, 2015})\)
• Data breaches \((\text{WEIS, 2015})\)
• Attribution of cyber attacks \((\text{PNAS, 2017})\)
• Censorship and Internet architecture \((\text{COMPASS, 2019})\)

Ratio of border ASes to all ASes over ten years

Nations known for censorship

Nations known for being free
Observations

• Science advisor not policy maker
  – CIP respected my expertise and time
  – State ‘is not a technical agency’
  – Being on the front lines is both exciting and dull

• The people
  – Think differently, dedicated to public service
  – High turnover---many iterated games

• The Interagency

• Stream-based workflow
  – No version control
  – IT is prehistoric

• The Jefferson Fellowship
  – Orientation programs: AAAS, JSF, FSI
  – Cohort important, visiting NSF
  – Continuity is important: Forrest, Martinosi, Suba

*It has been said that democracy is the worst form of government except all the others that have been tried.*”

Winston Churchill
Internet Assigned Numbers Authority

Transitioning the IANA Functions

3/14/2014 “U.S. to cede its oversight of addresses on Internet” NY Times
4/2/2014: U.S. House Hearing on Internet Stability and IANA
5/23/2014: DOTCOM ACT passed by House

- U.S. asked ICANN to convene global stakeholders to develop a consensus-based proposal for transition
  - 6 months of preparation leading up to the announcement
- Interagency task force to establish criteria for successful proposal
  - Support and enhance multistakeholder model
  - Maintain security, stability, resiliency of DNS
  - Meet needs of global customers/partners of IANA
  - Maintain the openness of the Internet
  - Accountability