Careers in Distributed Computing

DevOps, Blockchain, and Cyber Security
What's coming up?

1. Introductions!
2. Is distributed computing important?
3. What is DevOps?
4. What is Blockchain?
5. What is Cyber Security
6. How are they related?
8. Preparing yourself and portfolio
9. Professional training Fellowships
10. Q&A
Why does decentralization matter?
Why does decentralization matter?

When the central servers experience issues, what happens to your

- Money?
- Files?
- Conversations?
- Network access?
- Programs?
Why does decentralization matter?

Decentralized network:
- no central point of failure or censorship

Decentralized governance:
- no central administrator
Why does decentralization matter?

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- no central point of failure or censorship

Decentralized governance:
- no central administrator
DevOps is a manifestation of creating dynamic, learning organizations that continually reinforce high-trust cultural norms.
The old way...

Development vs Operations

Agile

SysAdmins Support
DevOps

Synergy between developers and operations!
DevOps Engineering

- Working on Cloud or On-Prem systems
- Automate infrastructure provisioning
- Ensure site reliability
- Enable scalability
- Improve agility of platform
- Enable developers to be autonomous
- Monitor and trace system’s health
BLOCKCHAIN
POWERING THE FUTURE

Improves Transparency

Faster Process

Identity Management

Expedited Security Screening

Travel Management

Esha
Municipal City Clerk
When Esha gets to work she manages licenses and permits, public records, and supervises local election ballots.

Samuel
Regional Sales Director
Samuel uses biometric identity verification to make his frequent business trips a smooth travelling experience.
Blockchain append-only database
Terminology 101

Decentralized Consensus

Principles for creating trustworthy networks from untrusted parties.

Built on technologies such as:
- Directed acyclic graphs (DAGs)
- Blockchain data structure
- Recursive databases
- (and more)

Disrupting major domains:
- Supply chain management
- Money (cryptocurrencies)
- Distributed computations
- Digital identification
- (and more)
Blockchain + decentralization = scaling pains
CYBER SECURITY
Cybersecurity is a term used to refer to security of online services and information.
Attacks Are Expensive !!!!
How are they all related?
Careers in DevOps, Blockchain, and Cyber Security
What do DevOps engineers do?

Build Scalable & Fault tolerant Infrastructure

Automation

Cross Functional

DevOps
DevOps Concentrations

- Infrastructure as Code
- Configuration Management
- Distributed Tracing
- Service Discovery
- Serverless
- DevSecOps
- Continuous Integration/Deployment
- Monitoring & Logging
- Container Orchestration
Who is looking for DevOps engineers?
What do Blockchain engineers do?

- Protocol development
- Distributed system engineering
- Trustless platforms
- Data science
- Monetary policy / economic design
<table>
<thead>
<tr>
<th>Stack:</th>
<th>Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>B2C</td>
<td>UI, JS, Web</td>
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<tr>
<td>B2B</td>
<td>Coding business logic on top of protocols</td>
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<tr>
<td>dApp</td>
<td>WASM, Solidity</td>
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<tr>
<td>Middleware</td>
<td>Go, Rust</td>
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<tr>
<td>Base layer</td>
<td>Go, Rust, Java, C</td>
</tr>
<tr>
<td>SPL</td>
<td>Hardware, LLS</td>
</tr>
</tbody>
</table>

The blockchain + dApp stack

| misc         | Python, APIs, RPC ops, etc.   |
Who is looking for blockchain engineers?
What do Security engineers do?

InfoSec

AppSec

InfraSec

NetSec
Security Technologies

- Access Management
- Cloud-Based Security
- Data Leak Prevention
- Intrusion Protection
- Firewalls
- Data Encryption
- Botnet Protection
- Endpoint Protection
- Malware/Virus Security
- Wireless Security

Security Skills

- Communication Skills
  - Ability to Work in a Team
- Organizational and Problem Solving Skills
- Programming Skills
- Understanding of Security Principles
- Risk Analysis
- Network Protocols
Who is looking for Security engineers?
Preparing Yourself
How to you prepare yourself for DevOps Engineering?

- Prepare a clean & updated LinkedIn profile

- Domain knowledge
  - AWS, GCP, AZURE
  - Linux distros
  - Networking, Databasing, etc.
  - Systems Thinking

- Tools:
  - Kubernetes
  - Terraform
  - Ansible
  - Jenkins
  - Docker
  - Yaml

- Showcase coding and documentation skills with a strong GitHub portfolio
Building a strong portfolio

- Creating open source tools to improve software development
- Automating deployments
- Building end-to-end systems

Terrastax
Qaif Shaikh

One Click deployment and integration for prometheus, grafana, airflow, E.L.K, and in k8s.

Securitas
Aditya Munot

How to prepare yourself for Blockchain Engineering?

- **Prepare a clean & updated LinkedIn profile**

- **Domain knowledge**
  - Cryptography basics (Why use a hash? Why use a nonce?)
  - Mental models for incentive structures
  - Designing for adversarial environments
  - Understanding decentralization - benefits and drawbacks

- **Coding ability, learn one or two of these:**
  - Go
  - Rust
  - Solidity
  - C++
  - Python
  - Java/script

- Showcase coding and documentation skills with a **strong GitHub portfolio**
Building a strong portfolio

- Contribute to codebases of major cryptocurrencies
- Build decentralized applications and platforms
- Create open-source foundational libraries

Lightning Channel Optimizer  
Darius Parvin

Identifies the optimal lightning node placement (channel connections) based on graph analysis of the network topology.

DShard  
Yaman Sharaf-Dabbagh

A dynamic sharding framework for the internet of things (IoT), using the IoTeX protocol.

fellows.link/darius
How to you prepare yourself for Security Engineering?

- Prepare a clean & updated LinkedIn profile

- **Domain knowledge**
  - Critical thinking/Problem solving.
  - Relevant areas of expertise: Networks, data analytics, compliance, cloud infrastructure, app development, operating systems.

- **Coding ability, learn one or two of these:**
  - Go
  - Rust
  - Javascript
  - C++
  - Python
  - Java

- Showcase coding and documentation skills with a **strong GitHub portfolio**
Building a strong portfolio

- Break systems
- Build applications and platforms

**SlackGuard**
Aashray Aggarwal
Security bot for Slack

**Secure PenBox**
Shasheen Bandodkar
A sandboxed cloud penetration testing environment that allows user test web application
Overview of Insight Fellows Program
Insight Programs

- Full-Time Programs
- Fully Remote Sessions
- Applicant Mentorship Available
- Scholarships Available
- No educational requirements for 5 of the 7 programs
- Fellows come from academia AND industry

Fellows come from a range of backgrounds:

- Physics
- Software Eng. & CS
- Biological Sciences & Eng.
- Mathematics
- Neuroscience & CogSci
- Chemical Sciences & Eng.
- Mech, Env, & Civil Eng.
- Social Sciences
- Hardware & Systems Eng.
- Geology & Earth Sciences
Insight is committed to improving access to opportunities for traditionally underrepresented groups in tech. In addition to interventions to improve access to the Fellows Program, we’re also working to provide an equitable experience where all Fellows feel a sense of belonging in the Insight Community. Here are a few ways we’re making it happen:

### Admissions
- Insight candidate mentorship program for underrepresented groups
- Insight & partner company sponsored scholarships available
- Learn more at: [insightfellows.com/scholarships](http://insightfellows.com/scholarships)

### Fellows Program
- DEI Summit, with lightning talks, panel discussions, and keynote speaker
- Data ethics & bias training
- Team dedicated to initiatives that improve the Fellow experience

### ...And Beyond
- Insight alumni provide mentorship to incoming Fellows
- Affinity groups to continue supporting the alumni community
In addition to an average base salary of $127,363, Fellows receive an average bonus of $11,200.

Source: Data reported from Fellows that completed Insight 2017-2019, compared to corresponding market data reported on Glassdoor in May 2020.
<table>
<thead>
<tr>
<th>Company</th>
<th>Fellows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facebook</td>
<td>107</td>
</tr>
<tr>
<td>Wayfair</td>
<td>51</td>
</tr>
<tr>
<td>Apple</td>
<td>50</td>
</tr>
<tr>
<td>Amazon</td>
<td>48</td>
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<tr>
<td>Vanguard</td>
<td>38</td>
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<tr>
<td>Google</td>
<td>33</td>
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<td>Microsoft</td>
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<td>CVS Health</td>
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<td>Capital One</td>
<td>30</td>
</tr>
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<td>LinkedIn</td>
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<td>Yelp</td>
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<td>Intuit</td>
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<td>Nielsen</td>
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<td>Uber</td>
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<td>Stitch Fix</td>
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<td>Square</td>
<td>18</td>
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<tr>
<td>Bloomberg</td>
<td>16</td>
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<tr>
<td>IBM</td>
<td>16</td>
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<tr>
<td>Netflix</td>
<td>15</td>
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<tr>
<td>Macy's</td>
<td>15</td>
</tr>
<tr>
<td>Total Fellows</td>
<td>700</td>
</tr>
</tbody>
</table>
What makes up the Fellows Program

Project-based Learning

**WHY**
- Show teams your full potential

**WHAT**
- Learn skills in a cutting-edge area
- Build your portfolio with highly-demanded technologies

**HOW**
- Actively learn by building
- Gain hands on experience with guidance from industry experts
What makes up the Fellows Program

Company Visits & Demos

WHY
- Meet the team members you'd work with
- Present to the teams that fit you

WHAT
- Over 38% of demos lead to an interview
- 3x higher for Fellows than traditional applications *

HOW
- Get your foot in the door with the hiring manager
- Guidance on presenting to hiring managers, and prep for each company

* Source: Jobvite 2019 Recruiting Funnel Benchmark Report
What makes up the Fellows Program

Interview Preparation & Coaching

**WHY**
- Interviews naturally have noise
- Interviews require deliberate and customized practice

**WHAT**
- Insight Fellows get jobs 40% faster with personalized support, with up to 24% higher salaries than comparable professionals

**HOW**
- Personalized preparation for your interviews
- One-on-one mock interviews for each company to help you show the relevant skills
- Negotiation support for offers
Structure of the Program: Week 1

- Introduction to program and high-level concepts in the field
- Select a project and set up cloud computing environment
Structure of the Program: Weeks 2-4

- Fellows work on their projects
- Hiring managers from Insight’s partner companies visit and meet with Fellows, chat about team, culture, values, open roles, desired skills and experiences
Structure of the Program: Weeks 5-7

- Present completed projects to hiring companies
- Mock interviews and help each other prepare for interviews.
- Begin interviewing with companies, with personalized preparation
- Introductions to new companies continue through demos and resumes
Structure of the Program: Receiving offers

Percent of Fellows that receive offer in relevant field

Median time to offer: 8 weeks

88% of Fellows receive an offer within 6 months

Source: Date of accepted offer reported by Fellows that joined Insight during 2017-2019
Successful Fellows create a lifelong network

- Past Fellows mentor new Fellows, just as the previous Fellows did for them
- The Fellow community accelerates learning through participation on our exclusive knowledge platform
- Deferred membership dues enable the program for future Fellows
When you become a Fellow, Insight makes a guarantee to you with three components:

- **$100K+ Salary**
  You accept an offer for a position that earns at least $100,000 USD annually.

- **Within 6 Months**
  You accept an offer dated within 6 months of the end date of the 7-week training program.

- **In a Relevant Field**
  You accept an offer within a field relevant to the programs offered by Insight.

Fellows receive the full membership benefits for the remainder of their careers, even if their financial commitment is waived as a result of the guarantee not being satisfied.
Upcoming Application Deadline

To apply, visit: apply.insightfellows.com

Next application deadline:
Monday, October 12

Next session begins:
Tuesday, January 19, 2021
Want to learn more?
Visit: insightfellows.com

Questions?
Email us at: info@insightfellows.com