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?

Decentralized network:
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
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

Decentralization

Transparent

Immutable

Block 9
Reference to previous block
Encrypted block

Block 10
Reference to previous block
Encrypted block

Block 11
Reference to previous block
Encrypted block

Block 12
Reference to previous block
Encrypted block

Block 13
Reference to previous block
Encrypted block
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 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
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<th>Skills</th>
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<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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<td>dApp</td>
<td>WASM, Solidity</td>
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<td>Middleware</td>
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<tr>
<td>Base layer</td>
<td>Go, Rust, Java, C</td>
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<td>SPL</td>
<td>Hardware, LLS</td>
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misc: Python, APIs, RPC ops, etc.

The blockchain + dApp stack
Who is looking for blockchain engineers?
What do Security engineers do?

- **InfoSec**
- **AppSec**
- **InfraSec**

**NetSec**

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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 you 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.

fellows.link/darius

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
How does Insight prepare YOU?

- Lead your own engineering project
- Learn through the guidance and mentorship of top experts in the field
- Rapidly gain domain knowledge and practical experience
- Career coaching, interview preparation, and technical challenges
- Professional feedback for polishing your LinkedIn, résumé, and GitHub
- Personalized introductions to top companies and projects, who compete to hire Insight engineers
INSIGHT IN A NUTSHELL

- Intro Week: Weeks 1
- Project: Weeks 2-4
- Company Visits: Weeks 5-7
- Job Interviews:
Q&A

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Start your application today! Deadline: July 20*
apply.insightfellows.com