DoraHacks

DoraHacks@US Opening Ceremony

MC: Tanha Kate

ACM-Minerva Chapter President

DoraHacks

Welcome

What do we have in store for you?

What is DoraHacks?

- **#Mission**: Connect hackers around the world and solve industrial problems using technology
- **#History:** Founded in late 2014
  - Open Wisdom Lab, Tsinghua University

- **#Accomplishments:**
  - More than 100 hackathons
  - Connected more than 3000 hackers and 300 enterprises
  - More than 100 problems solved

DoraHacks

Timeline

2015.3

THacks at Tsinghua University

DoraHacks[0:2]

University Tour-Hackathon in China (Tsinghua, Peking, Jiaotong, Beihang, etc.)

More than 20 DoraSpeaker events at Open Wisdom Lab & Tsinghua x-lab (e.g. XCOR speaker event)

2015.9

Enterprise-theme Hackathon with TicWear, APUS (Renewable Energy technology, architectural design, Wearable apps development, etc.)

Helped with the first Google Solve for X event in China

2016.1

Hackathons focusing on industrial problems

Commercial Real Estate Technology & Design Hackathon

Security Investment Technology

Solar Technology Hackathon

Precision Medical Device Hackathon

Retail Data Technology Hackathon

Public Security AI Hackathon

More than 2000 hackers and 100+ companies/organizations involved

Timeline (continued)

DeraHacks

Community

Hacker

AI Gurus
Data Analysts
Algorithm Engineers
Software Engineers
Software Architects
Blockchain Engineers
Python Engineers
NLP Gurus
CV Engineers
Product Managers
UI/UX Designers
Creative Designers
Psychologist
Cyber Security Engineers
Hardware Engineers
Researchers from Top Institutes & Universities
Industry Gurus from Finance, Consumer Products, Real Estates, Public Security, Healthcare Industry, etc.
… …

Organization

Alibaba
HSBC
KPMG
JD
Tencent
Didi
IBM
Momo
Lianjia
MI
Microsoft
NetEase
Gua Zi
Toutiao
Credit Ease
Xueqiu
WeCash
Mei Tuan
& Many Other Companies
… …

Universities & Schools

Oxford
IM
Cambridge
MIT
UCL
NYU
Harvard
PolyU
HKU
NUS
Tsinghua
Peking
CAS
Beihang
Beiyou
Tongji
Fudan
Sichuan
USTC
… …

Industries

Finance
Consumer Products
Public Security
Real Estate
Internet
Media
Healthcare
Entertainment
IoT
Electricity
Energy
Manufacturing
Mining
Food
Education
& Many Other “Traditional” Industries
… …

Key Sponsors

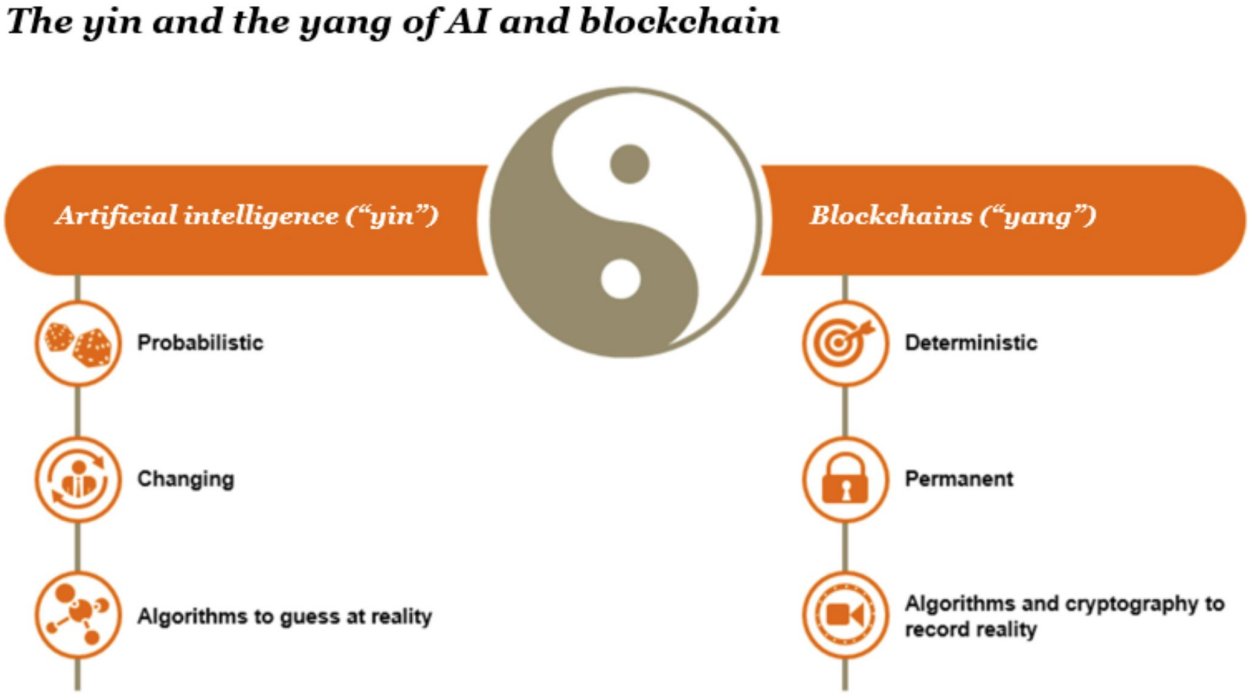
Food & Venue Sponsors

RXBAR®

IMPACT HUB San Francisco

DoraHacks

Theme: AI + Blockchain



Keynote Speech: Alex Witt

- Experienced Investment Analyst
- Passed all 3 Levels of the Chartered Financial Analyst Examinations
- Speaks 3 languages at native fluency
- CFO and Investment Manager of SwftCoin:
  - An easy and efficient platform for cryptocurrency transfer

DoraHacks

Keynote Speech - Alex Witt

AI, Blockchain, and the future of FinTech

AI, Blockchain, and The Future of FinTech

— January 2018 —

Alex Witt

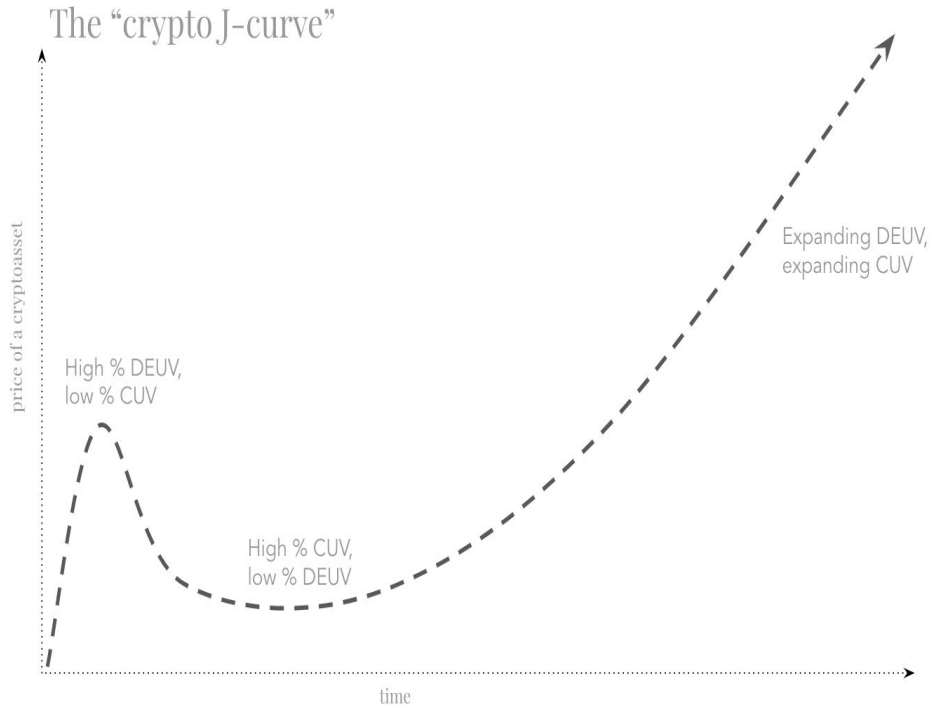
Why Finance is Due for an Overhaul

- Irresponsible Central Banks and Hyper Inflation
- Brokers Galore
- Heavy Regulation Stalls Innovation
- Best Products and Services are for Top Clientele Only
- Deal Flow is King
- Predatory Finance
- 3rd World Countries/The Unbanked

Blockchain: A Tail of Two Curves (Burniske's "Crypto J-curve")

Every technology brings a tendency of permanent conflict between hype and adoption:

- Hype is perception of future value
- Adoption is actual accrual



Blockchain Evolution

Blockchain 3.0

Decentralized Apps

Blockchain 2.0

Smart Contracts

Blockchain 1.0

Currency

How did it get started? (Blockchain 1.0)

- In 2009, a technical paper was posted on the internet by Satoshi Nakamoto titled *Bitcoin: A Peer-to-Peer Electronic Cash System*
- Key innovations: distributed ledger, public key cryptography, and proof of work system

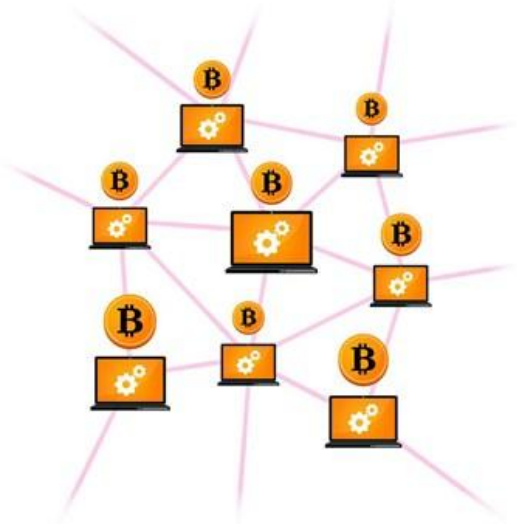
Bitcoin: A Peer-to-Peer Electronic Cash System

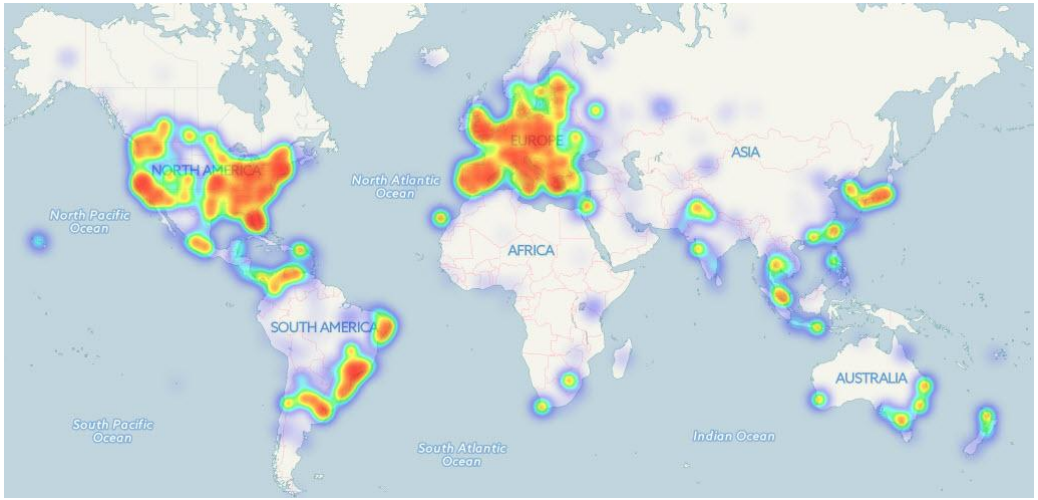
Satoshi Nakamoto
satoshin@gmx.com
www.bitcoin.org

Abstract. A purely peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without going through a financial institution. Digital signatures provide part of the solution, but the main benefits are lost if a trusted third party is still required to prevent double-spending. We propose a solution to the double-spending problem using a peer-to-peer network. The network timestamps transactions by hashing them into an ongoing chain of hash-based proof-of-work, forming a record that cannot be changed without redoing the proof-of-work. The longest chain not only serves as proof of the sequence of events witnessed, but proof that it came from the largest pool of CPU power. As long as a majority of CPU power is controlled by nodes that are not cooperating to attack the network, they'll generate the longest chain and outpace attackers. The network itself requires minimal structure. Messages are broadcast on a best effort basis, and nodes can leave and rejoin the network at will, accepting the longest proof-of-work chain as proof of what happened while they were gone.

Bitcoin Network

Bitcoin is created and maintained by many thousands of computers worldwide.





Source: June 2017

Where do bitcoins come from?

- When a block is solved on the blockchain.

21 million	2140
10 minutes	~4 years

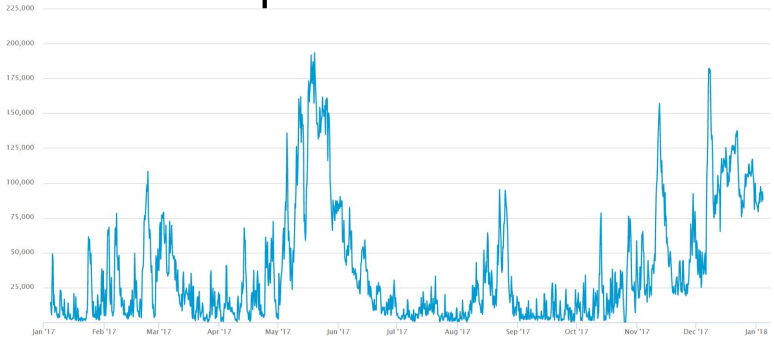
Is bitcoin the digital age's gold?

1. Durable
2. Divisible
3. Convenient
4. Consistent
5. Possess Value
6. Limited Quantity
7. Long History

Date	BTC	Gold
11/23/2012	~$12	$1,753
01/19/2018	$12,345	$1,333

What problem is being solved?

BTC Mempool Transaction Count



BTC Cost Per Transaction

Source: Blockchain.info, 3 January 2018

Since November transactions in the mempool (transactions waiting to be confirmed) are above 50,000, meaning that the average transaction requires several hours to get confirmed.

At the same time, the average cost per transaction (defining here as miners' revenue/number of transactions) is now over USD 100.

Is Bitcoin Cash (BCH) the Solution?

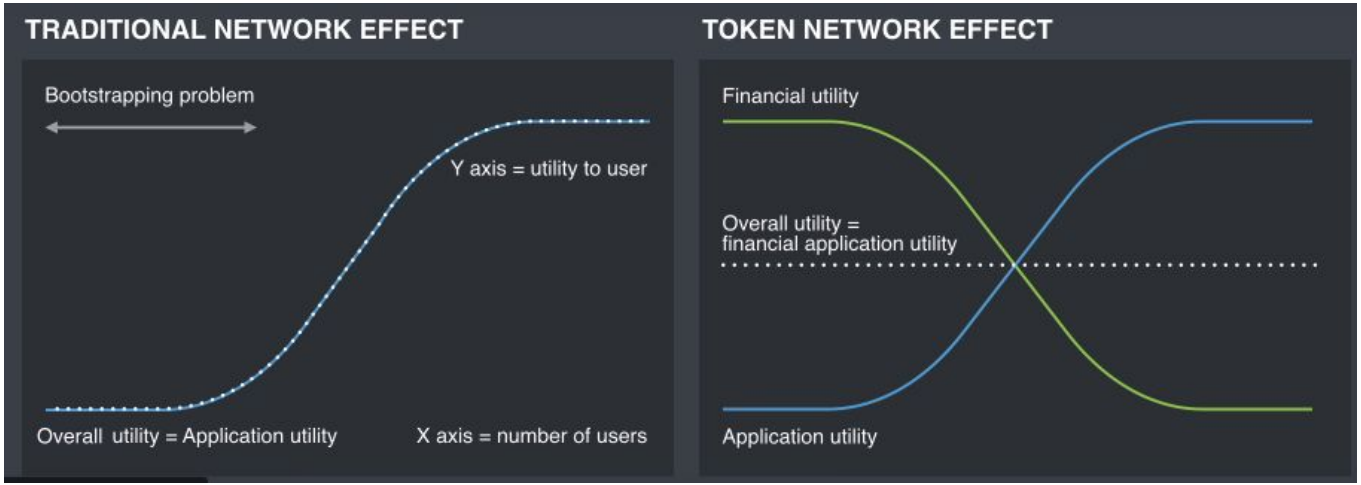
- BCH default blocksize limit increased to 8 MB default.

Ethereum (Blockchain 2.0)

- July 2015, *A Next-Generation Smart Contract and Decentralized Application*
- Ethereum as the Javascript of blockchain, open sourced, mutable, and foundation for other applications

Decentralized Apps, Tokens, and the ICO (Blockchain 3.0)

- VC ripe for disruption? The materialization of the True Vision of Equity Crowdfunding (more like IPO than a venture roudnm)
- While network effect value is low, you can expand users by utilizing incentives from the blockchain.



Source: Andreesen Horowitz

AI and Finance

Computer Vision

Robotic Process Automation (RPA)

Deep Learning

Natural-Language Processing (NLP)

Recommendation Engines

Neural Networks

Predictive Analytics (PA)

Voice-recognition

Machine Learning (ML)

Prescriptive Analytics

Examples of AI in Finance

- **Macroeconomics (NLP, PA) –** use NLP to sift through central bank commentary, algorithms to scour oil-tanker data
- **Equities Buy Side (PA) –** use PA to time stock purchases and assess risk
- **Equities Sell Side (RPA) –** Execute order with RPA
- **Credit Buy Side (ML) –** teaching computer to scan and understand bond covenants, legal documents, and court rulings

What happens to Wall Street?

- Shift to Meritocracy
- Increased Accountability
- Competition to Improve Services
- Low Value Add Jobs Will Be Eliminated
- Increased Access to Services
- Alternative Stores of Value and Funding

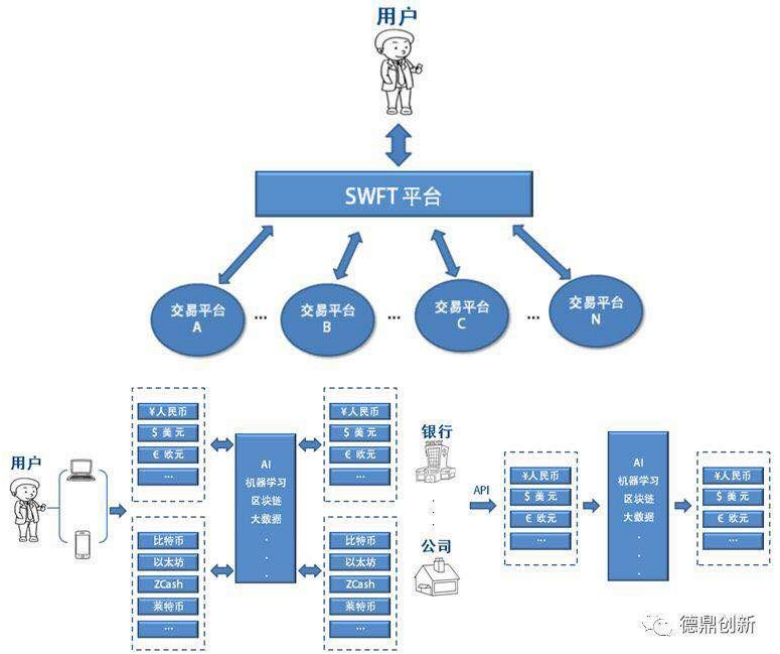
SWFT: The Intersection of Blockchain 3.0 and AI

About SWFT and SwftCoin

- SWFT integrates the world's cryptoexchanges and leverages blockchain and AI to effectively hedge risk and lower execution costs.
- SwftCoin, based on Ethereum's ERC-20 token standard, is SWFT's proprietary token, a new decentralized blockchain protocol utilized to facilitate transactions.

Progress

- Android app and web version 2.0 launched
- Top VC support: Draper Dragon
- SwftCoin listed on several exchanges: HitBTC (12/18), OEX (12/21), Coinbene (12/27), OKEx (12/28), Huobi (1/5), ACOIN (1/5)



Disclosure: I'm the CFO of SWFT. This should NOT be interpreted as investment advice.

Get 100 free SwftCoin to use on exchange.swft.com:

1. Join below WeChat Group
2. Download imToken
3. Send digital address

DoraHacks

Rules

- 24-hour
  - Define your own problem
  - Leaving halfway is strongly discouraged
- Work on existing project is allowed
  - Evaluated on 24-hour improvements
- Trinity principle:

  1. **Feasible**
  2. **Technical**
  3. **Creative**

Demo

- Everyone votes:
  - 3 ballots per team
  - 2 ballots per judge
- You must vote for a team other than your own
- You must vote for more than one team
- 5-7 minute Demo + 2 minute judge Q&A

Prize

- Top 3 teams share a prize pool of 2 Ethereum + direct access to 2nd Hackathon at Stanford University
- Top 1 team wins a trophy presented by Fortuna
- Be prepared to offer your Ethereum wallet account for prize redemption

Ethereum transferred within 2 days

DoraHacks

Saturday, January 20th

8:00 am Event and Partner setup
8:30 am Doors Open & Registration
10:00 am Opening Ceremony & Keynote Speech
10:40 am Network & Team-building
11:00 am Hack round 1
12:30 pm Lunch
1:00 pm Hack round 2
6:00 pm Dinner
10:00 pm Team Profile Completion
11:00 pm Midnight Snack
12:00 – 8:00 am Hack through the night

DoraHacks

Sunday, January 21st

7:00 am Breakfast

9:00 am Demo setup

9:30 am Welcome judges & network

10:00 am Demo's Begin

12:30 am Voting & Final Decision

1:00 pm Award Ceremony

1:30 pm Family Photo & Networking

IBM mentors

Paul Van Eck

Catherine Diep

Welcome IBM OpenTech team

IBM OpenPOWER program

They will be with us until 3pm

- Tech support: Nimbix Cloud Access, TensorFlow
- Mentor: team welcomed to consult them anytime

IBM Digital Business Group

Running An AI Workload With IBM PowerAI

January 20, 2018

Catherine Diep, Paul Van Eck

IBM

IBM PowerAI Platform

PowerAI Software Distribution

Deep Learning Frameworks

- Caffe
- NVIDIA Caffe
- IBM Caffe
- torch
- TensorFlow
- theano
- Chainer

Supporting Libraries

- DIGITS
- OpenBLAS
- Distributed Frameworks
- Bazel
- NCCL

IBM Power System for HPC, with NVLink

Breakthrough performance for GPU accelerated applications, including Deep Learning and Machine Learning.

IBM PowerAI Trial Server

- IBM has partnered with Nimbix to provide cognitive developers a trial account that provides 24-hours of free processing time on the PowerAI platform
- Go to the IBM Marketplace PowerAI Portal.
- Click the “Request trial” button
- Follow the instructions provided to register and access your IBM PowerAI Trial environment. An email will be sent with access information.
- Demo on the trial server can be found at http://localhost:8888/tree/demo

IBM PowerAI Trial Server

Note: Your trial server will be refreshed every 4 hours.

- IBM has partnered with Nimbix to provide cognitive developers a trial account that provides 24-hours of free processing time on the PowerAI platform
- This is a measure to help free up GPU resources. Make sure you save your work in `/data` or locally to prevent data loss. Be sure to allow enough time for training to complete and data to be copied.
- Details on your trial can be found at https://myibm.ibm.com. Here you can activate a new server within your trial period.

1. Log on to Ubuntu as user “nimbix” with the password provided by Nimbix

Bring up a terminal window, ssh to the nimbix server (i.e. NAE-165-254-189-??.jarvice.com) as nimbix user with provided password.

```
=> ssh nimbix@NAE-165-254-189-??.jarvice.com
```

Add the following entry to the resolv.conf file for internet access:

```
$ sudo su -
$ vi /etc/resolv.conf
# add "nameserver 8.8.8.8" as the first entry
```

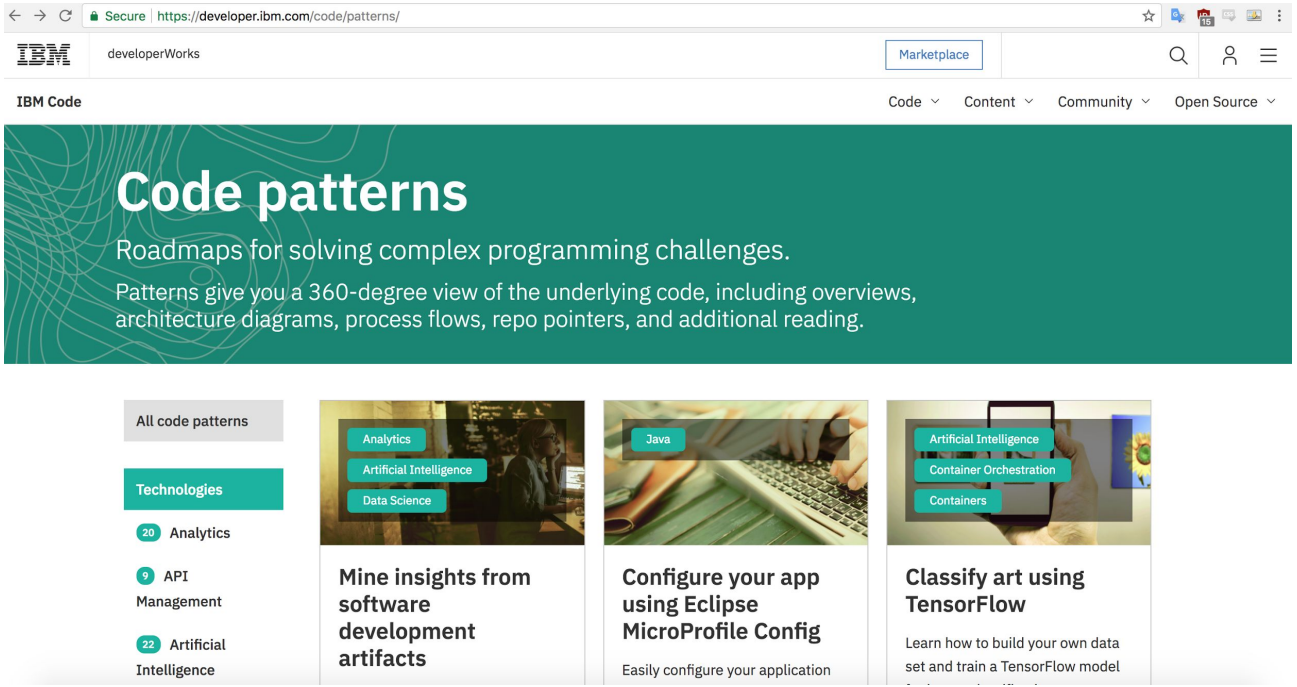
2. Source a virtual environment

All ML/DL frameworks live in /opt/DL; you must source an environment setup script before accessing them, e.g. one of the following:

```
source /opt/DL/caffe-bvlc/bin/caffe-activate
source /opt/DL/caffe-ibm/bin/caffe-activate
source /opt/DL/caffe-nv/bin/caffe-activate  # recommended
source /opt/DL/chainer/bin/chainer-activate
source /opt/DL/openblas/bin/openblas-activate
source /opt/DL/tensorflow/bin/tensorflow-activate
source /opt/DL/theano/bin/theano-activate
source /opt/DL/torch/bin/torch-activate
```

Developer Code Patterns

https://developer.ibm.com/code/patterns/

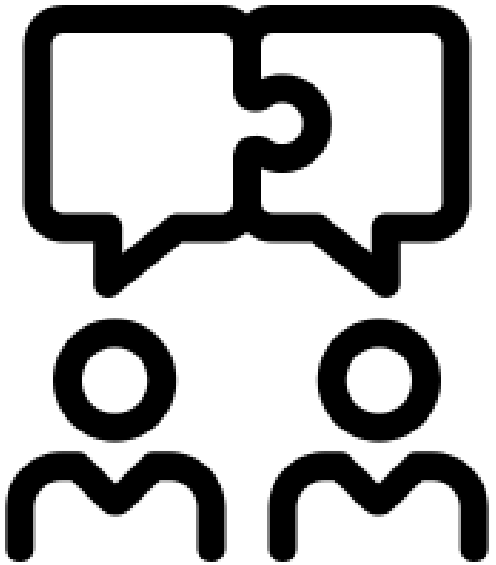


Final Tips

- **Saturday**
  - **12:30 pm** Lunch
  - **6:00 pm** Dinner
  - **11:00 pm** Midnight Snack
- **Saturday 10:00 PM**: Upload team profile on Google Sheets
- **Sunday**
  - **7:00 am** Breakfast
  - **9:00 am** Demo setup
- Shower rooms, kitchen, glassroom (small meeting), sharpies


ELEVATOR
PITCH

Team Building



DoraHacks

HACK