9 Startup Ideas from Duke University’s Cryptoventures Course

Campbell R. Harvey
Duke University and NBER
New Course for Spring 2015

INNOVATION & CRYPTOVENTURES
I&E 550


Bitcoin 2.0. Legal and regulatory environment. Cryptoventures.
Syllabus

1. The History of Money. High level intro to cryptocurrency.
2. Cryptography 101 (Diffie-Hellman, RSA, Elliptic Curve) and intro to hashing (SHA-2). Private keys and public keys.
4. Blockchain simulation. Permissioned vs. public ledgers.
5. Blockchain applications (Nasdaq, IBM, etc.). Sidechains. Merge mining.
7. Colored coins and conditional contracts.
8. Applications 21/Lightning/Proofofexistence/Databases/Factom.
9. Applications R3CEV, DAH-Hyperledger
10. Legal. KYC, ALM, BitLicense.
11. Course wrap-up followed by student presentations.
Guest Speakers

• Adam White, January 29, Coinbase
• Stan Larimer, February 5, BitShares
• Austin Hill, February 12, Blockstream
• Jameson Lopp, February 19, Bitgo
• Brad Wheeler, February 19, Bitcoin Foundation
• Barry Silbert, March 19
• Fred Ehrsam, March 26, Coinbase
Main Deliverable

Grade largely determined by the quality of a maximum 15 slide pitch for a new business that has a link to blockchain technology.
Student presentations on last two days of the course.
Teams

Nine groups.

• Diversified membership including:
  • 2\textsuperscript{nd} year MBA,
  • Law student,
  • Engineer, and
  • Computer Science major.

• Course runs January – April.
Great Wall Street Journal Bitcoin Debate

WSJ decides to conduct a debate.

• I am chosen as “Pro” bitcoin.
• My essay is due February 14.
• I ask students to provide comments on my essay. Reverse of the usual teaching situation.
Do Cryptocurrencies Such as Bitcoin Have a Future?
Innovative alternative currencies come with great possibilities—but also great risks

March 1, 2015 11:09 p.m. ET
YES: Don’t Judge Bitcoin by Its Early, Inevitable Problems
By Campbell R. Harvey

Successful innovations solve important problems. Here are some of the problems that bitcoins solve.

- Bitcoins allow online transactions without worrying that personal data (such as credit-card or bank-account details) will be compromised.

- Anyone with a cellphone or Internet connection can execute seamless transactions, even in amounts less than a penny. This is important for many who lack bank access, especially in the developing world.

- International remittances carry trivial fees compared with the 10% charged by current firms in this space.
Great Wall Street Journal Bitcoin Debate

#1 Story on

[r/bitcoin](https://www.reddit.com/r/bitcoin)
Professors stake out territory for bitcoin

Stephen Foley

The last thing Campbell Harvey wants is to find himself playing the role of Lawrence Summers in The Social Network, who had to adjudicate arguments between Mark Zuckerberg and the Winklevoss twins when he was president at Harvard University.
Bitcoin gets its first major U.S. exchange

A bitcoin medal is displayed at a bitcoin trading club meeting in Tokyo.

by Mitchell Hartman

Monday, January 26, 2015 - 15:04
Uber revealed last week that its database was hacked about 10 months ago and private information about 50,000 drivers could have been compromised, Bloomberg reports. Competition just got harder in India, where Uber competitor Ola has acquired another rival named TaxiForSure for $200 million, TechCrunch reports.

Bitcoin the currency may be down, but don’t count the technology out, argues Duke University professor Campbell Harvey. Small bitcoin mining operations aren’t doing so well amid the currency’s boom and bust cycles, reports the New Republic. The New York Times says that data security is one of bitcoin’s biggest draws. But keep in mind that hackers used Tor to infiltrate services such as Blockchain.info and LocalBitcoins to steal bitcoins, Forbes reports.
Cryptocurrency Exchanges Emerge as Regulators Try to Keep Up
Trust issues plague bitcoin and other digital currencies. Licensed exchanges could change that.

By Larry Greenemeier  |  April 8, 2015  |  Véase en español

April 8, 2015

Bitcoin-Based Blockchain Breaks Out
Virtual currencies such as bitcoin rely on this digital public ledger system to guard against fraud, an approach that could likewise secure the coming Internet of things.

By Larry Greenemeier  |  April 1, 2015

April 1, 2015
Money Magazine

February 24, 2015

Campbell R. Harvey 2015
Blockchain initiative backed by nine large investment banks

Phillip Stafford

Nine of the largest investment banks, including Goldman Sachs, JPMorgan and Credit Suisse, are planning to develop common standards for blockchain technology in an effort to broaden its use across financial services.

The group are looking to channel data, ideas and financial backing to a start-up called R3CEV, a New York-based group of trading and technology executives.

Stanford Joins NYU and Duke in Offering Bitcoin Course

Grace Caffyn (GCaffyn) | Published on August 24, 2015 at 12:17 BST

Stanford is joining NYU and Duke University in offering a course on bitcoin – kicking off with a free security webinar tomorrow.
Student Ventures

Co.insure
Health Insurance on the Blockchain

BitMart
The pre-owned marketplace for E-Books
Seeking $70M

ComplyChain

PresCrypt & RXchain
April 23, 2015
Hunter Cardwell (Fuqua)
Harrison Richard (Trinity)
Mitesh Tank (Fuqua)

Crypto-Secure
For digital, secure and accurate credit information
I&E: 650

BitTrax
Melissa Zhang
Scott Roulston
Avi Moondra
Trevor Kiviat

EQUICHAIN
Chris Boone, Ryan Lannom, Emanuele Macchi, Marie Hasse
4/23/15

BLOCKTITLE
Chip Blue, Sharon Feng, Lalita Marad, Will Ronish
April 24th 2015

PORTOL
Control your media.
No photos of slides please
Conclusions

First course ever offered focused on blockchain technology

• We are seeing only the tip of the iceberg in terms of innovative ideas
• Most people have heard of bitcoin; few understand blockchain
• Big opportunity for new ventures